



Towards a Natural Heritage System for the Credit River Watershed

Natural Heritage Policy Review



prepared for

September 2012



by **Anthony Usher** Planning Consultant



Cover photos

upper left - Meadowvale Woods, Leanne Wallis, CVC

centre - Credit River, CVC

lower right - Rattray Marsh, Terrestrial Monitoring Program, CVC

1 INTRODUCTION

Credit Valley Conservation (CVC) is developing a Natural Heritage System (NHS) for the Credit River watershed, as part of its Terrestrial Ecosystem Enhancement Model (TEEM) program. The NHS will support CVC's input into municipal plans and studies and review of planning applications. It will also assist in CVC's own programs, such as natural area inventories, restoration and stewardship activities, and natural areas securement. As well, it will help landowners identify, protect, and enhance natural heritage values on their properties.

The TEEM program has four phases:

1. Characterize existing watershed conditions based on existing data.
2. Plan how to integrate aquatic and terrestrial functions.
3. Develop NHS, identifying key natural areas for stewardship, protection, or restoration.
4. Develop model recommended planning policies, and other recommendations for implementing NHS. Take forward to municipal partners and other stakeholders.

Phases 1 and 2 provide the scientific foundation for the NHS. They have been completed, and are documented in *Towards a Natural Heritage System for the Credit River Watershed - Phases 1 & 2: Watershed Characterization and Landscape Scale Analysis, Final Technical Report*, released in February 2011. Phase 3 is currently in progress. CVC stakeholders and municipal partners have been engaged and involved throughout the process.

To help lay groundwork for Phase 4, CVC desired a review of existing relevant NHS planning policies within and beyond Ontario, and retained Anthony Usher Planning Consultant for this purpose. CVC may undertake a further review of incentive programs and other tools for protecting natural heritage at a later date. The present report, and the further review if undertaken, will serve as background to CVC's development of model recommended planning policies later in Phase 4. ***CVC has not determined its policy direction at this time, and the policies in this report are not CVC's model recommended policies.*** The key elements of the project work plan were as follows (the sections of this report where the results of each element may be found are indicated).

- Identify and review relevant municipal and provincial NHS policies in Ontario (Section 3 and Appendix tables A1-A4).
- Identify innovative policies and policy gaps, including review of innovative, relevant NHS policies outside Ontario (Section 4 and Appendix tables A1-A5).

- Recommend best-practice candidate policies, for consideration by CVC as part of its development of model recommended planning policies in Phase 4 (Section 5).

This report is a review of policies in the abstract, not a review of the effectiveness of policies, which would be a far larger and more complex task. First, under the *Planning Act* and *Condominium Act, 1998*, there is a wide variety of instruments available for implementing official plan policies: lower-tier policies where the policies at issue are upper-tier, zoning bylaws, holding provisions, subdivision plans/consents and agreements, condominium descriptions and declarations, site plans and agreements, etc. Additional instruments are available under other legislation, of which tree cutting and site alteration bylaws are just two examples. Each municipality has its own preferences as to how it uses these, based on its composition, resources, political orientation, and planning expertise and culture. Second, in the two-tier municipal systems that characterize the Credit River watershed, effectiveness can mean very different things, depending on whether the municipality whose policy is being considered is or isn't the municipality with authority over the implementing instruments. Third, while there has been much discussion over the last 20 years in Ontario about indicators, monitoring, etc. to measure the effectiveness of implementation of planning policies, there is precious little in the way of demonstrated results to show for it.

The policies reviewed were current as of August 2011. No attempt has been made to update the information in this report to reflect any changes in plan status since then.

To make this report a useful and accessible product, in many cases ***it was necessary to simplify and generalize the policies reviewed for ease of comparison. For more precise, more complete information, the source documents should be referred to.***

2 NATURAL HERITAGE SYSTEMS STRATEGIES OF CONSERVATION AUTHORITIES

Conservation authorities (CAs) have taken various approaches to the development of NHS strategies and planning policies.

Some CAs simply rely on existing resource information from their own and Ministry of Natural Resources databases, more specific resource information such as that provided in subwatershed studies, and existing policy (Provincial Policy Statement and municipal and provincial plans), as the basis for providing input into the planning review and approval process.

Some CAs have undertaken NHS studies that are broad in scope, but targeted to individual municipalities, as part of their plan input and review role. For example, Cataraqui Region CA completed *Central Cataraqui Region Natural Heritage Study, Final Report*, August 2006. This report was entirely focused on two member municipalities, Kingston and Loyalist. Its purpose was to identify and recommend a municipal NHS, and review and recommend improvements to official plan policies, as input into those municipalities' official plan reviews. Similarly, the Upper Thames Region CA undertook the *Oxford Natural Heritage Study*, October 2006, for the County of Oxford. Its primary purpose was to identify and recommend a NHS as input into the County official plan; the report also included some very limited and general discussion of official plan policies.

Other CAs have followed a path more like that which CVC is taking:

- ▶ Lake Simcoe Region CA undertook with Beacon Environmental, *Natural Heritage System for the Lake Simcoe Watershed - Phase 1: Components and Policy Templates*, July 2007. This report identified NHS components and put forward policies for both CA and municipal consideration.

The Phase 1 report has never been adopted by the CA as its official NHS, but it has been used as input into several official plans.

A Phase 2 restoration, enhancement, and securement strategy was planned, but did not proceed because the Province's Lake Simcoe Protection Plan intervened.

- ▶ Toronto and Region CA developed a *Terrestrial Natural Heritage System Strategy*, which was approved "in principle" by the Authority Board in January 2007 for distribution to partner municipalities and stakeholders. A science-based system modelling approach was used to develop a target NHS, which includes not only existing natural heritage features but also other areas with the best potential to strengthen the NHS through restoration. The strategy also includes model planning policies. Both the target NHS and the model policies were intended as input into member municipalities' planning documents.

- ▶ Central Lake Ontario CA is developing its NHS, by adapting the natural science and system modelling approach used by Toronto and Region CA. Central Lake Ontario is not at this time planning to extend this work into recommended planning policies beyond advocating protection of the mapped NHS (*Developing CLOCA's Ultimate Natural Heritage System: A Methodology*, July 2010, since endorsed by the Authority Board).

Also, in 2005, a guidance document was produced for the Conservation Authorities Moraine Coalition (including CVC), and Durham, Peel, and York Regions and the City of Toronto, *Watershed Planning - From Recommendations to Municipal Policies* (Ogilvie, Ogilvie & Company and Anthony Usher Planning Consultant). The purpose of this document was to identify model planning policies for natural heritage, water, landforms, and infrastructure, so that watershed plan recommendations would be more effectively translated into municipal policies.

Finally, it should be noted that most CAs have one or more policy documents, to guide implementation of their regulatory functions under section 28 of the *Conservation Authorities Act* and/or their plan review functions under the *Planning Act*. It was decided not to include such documents in this review. Only the plan review aspects of these documents would be relevant to this report, and as a rule, the relevant portions do not advance planning approaches not already found in the other types of documents reviewed in this report. Please see *Policies in Transition: Comparative Review Working Paper*, Greater Golden Horseshoe Conservation Authorities, 2008, for a recent review and analysis of such documents.

Please see Section 4.2 of this report for discussion of innovative policies in the CA and CA-related documents described above.

3 NATURAL HERITAGE SYSTEM POLICIES IN OFFICIAL AND PROVINCIAL PLANS

3.1 Which Plans Were Reviewed and Why

As described in Section 1, the purpose of this review is to identify innovative, best-practice policies that go beyond the norm required by Provincial policy. The official and provincial plans selected for review were those that the consultant and CVC staff thought would be most promising in that regard.

In making this selection, the consultant and CVC staff drew on:

- their own knowledge and experience,
- other recent reviews of other municipalities' policies undertaken in support of planning policy development (Halton Region, Simcoe County),
- a survey of CAs in the Greater Golden Horseshoe, undertaken as part of *Natural Heritage Systems: Towards a Framework for the Future*, Greater Golden Horseshoe Committee of Conservation Authorities Natural Heritage Subcommittee, April 2011,
- inquiries to the regional municipal services offices of the Ministry of Municipal Affairs and Housing.

It was agreed that selected official plans should generally meet the following requirements, in addition to being at the leading edge of current practice:

- While upper-tier official plans more often take the policy lead in two-tier systems, a mix of upper-tier, lower-tier, and single-tier plans should be reviewed.
- The upper-tier plans applicable to the Credit River watershed should be included.
- The versions reviewed should at minimum, have been adopted by the municipality.

An original long list of about 30 official plans was developed. Of course, despite the best efforts of the consultant and CVC staff, some plans with innovative policies worthy of review may have been missed.

From the long list, the following were selected for comprehensive review (plan status is as of August 2011):

Upper-tier

- Durham
- Halton, incorporating OPA 38 which is adopted but not approved

- Niagara
- Peel
- Simcoe, adopted but not approved
- Waterloo, approved but under appeal
- Wellington
- York, approved but under appeal

Single-tier

- Guelph, incorporating OPA 42 which is approved but under appeal
- London

Lower-tier

- Caledon
- East Gwillimbury.

Four other plans were identified as meriting not comprehensive review, but a brief review to identify any particularly innovative policies, for inclusion in Section 3.3: Brockville and Toronto (single-tier), and Georgina and Oro-Medonte (lower-tier).

The following provincial plans were selected for comprehensive review:

- Central Pickering Development Plan
- Greenbelt Plan (Protected Countryside policies only)
- Lake Simcoe Protection Plan
- Oak Ridges Moraine Conservation Plan.

The results of this review are presented in table form in Appendix tables A1 through A4.

3.2 Approach

This section sets out the key approaches taken to produce Tables A1 through A4. More specific, detailed notes are provided in the Notes and Explanations section of the Appendix that precedes the tables.

Each document was comprehensively reviewed against a preset list of planning considerations. While the focus was on natural heritage policies, all other policies also relevant to natural heritage features and systems were also reviewed. The tables show the list of planning considerations as the first (header) column.

- ▶ The review of each document begins by identifying the NHS (see "Name of NHS" row in tables). Perhaps surprisingly, it is not always clear what "the NHS" is, in which case it becomes a matter of judgement, sometimes fairly arbitrary. Some

plans (for example, Oak Ridges Moraine Conservation Plan) have more than one type of designation that potentially constitutes a NHS, and do not specifically say, "designation x is the jurisdiction's NHS". Some plans (again, for example, Oak Ridges Moraine) never refer to a "natural heritage system".

- ▶ There are also designations that appear at first glance to be NHS-like, but are actually broader in intent (for example, the Greenlands System designation in the Durham Official Plan, which includes open space and countryside areas). There are also designations that are clearly related to natural heritage, but which are explicitly described as *not* being part of the NHS. See the "Relationship to other plan designations" row in the tables.
- ▶ Some plans explicitly include in their NHSs certain components (for example, water features) that in other municipalities, are explicitly excluded from the NHS and instead included in some other designation or ecological system. See the "NHS components" section in the tables, and more detailed notes on NHS components in the Notes and Explanations section of the Appendix.
- ▶ Plans vary widely in how they treat permitted uses (see "Development and uses permitted/restricted" section of tables). Some plans provide specific policies on developments and uses permitted, restricted, or prohibited in the NHS. Others do not, leaving matters to the Provincial Policy Statement (PPS), or to the policies of the base designation if the NHS is an overlay designation, or to the site-specific results of an environmental impact study (EIS), or some combination of these. As well, if the NHS is an overlay designation, even where specific permitted uses policies are provided they can only be fully understood in combination with the policies of the base designation. Some upper-tier plans also assign to their lower tiers some of the responsibility for determining permitted uses in the NHS (see "Local OP requirements" row in Tables A1 and A2).

3.3 Results

Appendix tables A1 through A4 were designed to be useful and accessible, in conjunction with the additional explanations provided in Section 3.2 and the Appendix. Therefore, the intention of this report is that the tables speak for themselves.

The following comments are not intended to summarize the tables, only to provide a few observations on the reviewed plans.

- ▶ Generally, NHSs go beyond the base requirements of the PPS in identifying what's included. (The base requirements of the PPS are summarized in the Notes and Explanations section of the Appendix.) Going beyond the PPS means including components that are not identified in the PPS's natural heritage policies (such as savannahs or groundwater features), or elements that are not "PPS-significant" of

components that are identified in the PPS (such as regionally significant Areas of Natural and Scientific Interest (ANSIs)). (In this report, "PPS-significant" is used to refer to the natural heritage features enumerated in the PPS definition of "natural heritage features and areas" and in PPS policies 2.1.3, 2.1.4, and 2.1.5. PPS-significant features, as they apply in the Great Lakes-St. Lawrence Lowlands, are also listed in the Notes and Explanations section of the Appendix. Note that although "provincially significant" is commonly used to mean what this report refers to as "PPS-significant", in the PPS it is used to refer to only some of the PPS-significant features, and therefore does not have a clear meaning equivalent to "PPS-significant".)

- ▶ Multi-level NHSs are common. They tend to follow the model of a first level which includes, more or less, those components that are PPS-significant, plus those features most strictly protected by any applicable provincial plans. In this most common model, the second level consists of the rest of the NHS; where a third level is present, it most commonly consists of lands with more future than present value, such as linkage and restoration areas.
- ▶ In terms of use permission, regardless of the extent of the NHS, it is not common for municipalities to severely restrict development much beyond where it would be otherwise severely restricted by the PPS or provincial plans. Multi-level NHSs often serve to differentiate between more restricted and less restricted areas. The most common approach is simply to broaden the areas (most often to the entire NHS) where development is subject to an EIS.
- ▶ Lower-tier municipalities that are leading-edge tend to have NHSs that are more expansive than those of their upper tiers, and to restrict development to a greater extent.

In addition to the regulatory policies described in the tables, some plans also establish jurisdiction-wide targets for protection. These are very "aspirational" policies, as they are not accompanied by means to achieve them. These policies are also somewhat tangential to the NHS as they tend to focus on areas with natural cover, which may include areas not in the NHS and exclude areas within it. For these reasons, it was decided not to include such targets as considerations in Tables A1 through A4. Typical targets in official plans are 25% or 30% of the municipality in forest cover, or forest cover plus wetland. The Lake Simcoe Protection Plan includes a target of 40% high quality natural vegetation cover.

4 INNOVATIVE NATURAL HERITAGE POLICIES

4.1 Official and Provincial Plans

In Appendix tables A1 through A4, certain policies are highlighted (in grey if printed in black and white, in light orange ("gold") if printed in colour or viewed on screen). These highlighted policies are what the consultant and CVC consider to be innovative natural heritage policies.

The criteria used to identify innovative policies were as follows - and applying them is a matter of judgement:

- are acceptable policies in a *Planning Act* and official plan context,
- represent the leading edge of best current practice, and
- could advance the goals and objectives of CVC's NHS (see Section 4.2, *Towards a Natural Heritage System for the Credit River Watershed, Phases 1 & 2*, 2011).

Policies that are "different" or "unusual", but do not meet the preceding criteria, would not qualify as innovative policies.

It was not felt appropriate to identify innovative policies in the "NHS basics", "NHS components", and "NHS levels" sections of the tables, as the policies addressed in those sections should be determined first and foremost by the environmental and resource characteristics and social preferences of the individual jurisdictions.

As indicated in Section 3.1, four other official plans (Brockville, Toronto, Georgina, Oro-Medonte) were briefly reviewed for innovative policies. All these plans did have some innovative policies, but in most cases, these were the same as or similar to policies highlighted in Tables A1 through A4.

The only innovative policies that are not reflected in the tables are in the Official Plan of the Township of Oro-Medonte, January 2007 consolidation:

- ▶ Some other plans prohibit new residential lots within part or all of the NHS, with exceptions in some cases. Oro-Medonte prohibits residential lots within parts of its NHS, except where this would enable conveyance of the remaining lands to a public authority or not-for-profit organization, or if the remaining lands are subject to a long-term conservation easement (sections B1.10.1.4.c, B1.10.2.4.b).
- ▶ Some other plans consider mineral aggregate operations in parts of the NHS through policies such as permitting extraction subject to demonstrating net ecological gain through rehabilitation, stipulating replacement and/or enhancement of features and

functions as an additional consideration in approval, or encouraging net ecological gain as part of operations or rehabilitation. Oro-Medonte goes beyond that by requiring that mineral aggregate operations, where permitted in certain parts of the NHS, must demonstrate a "net environmental gain" (C12.4.3.2.g, C12.4.3.2.h), and directs that such gain be taken into account in determining whether no negative impact has been demonstrated (C12.4.3.2.i). The plan also provides very specific direction as to what constitutes "net environmental gain", indicating that it must be both short and long term, must go beyond replacement, and may occur both on and beyond the subject lands (C12.4.9). In different parts of the NHS than the preceding policies address, Oro-Medonte requires enhancement or compensation recommendations as part of extraction applications, and directs that those recommendations be taken into account in determining whether no negative impact has been demonstrated (C12.4.3.5, C12.4.3.7).

4.2 Conservation Authorities

As indicated in Section 2, the CA and CA-related model-policy documents described in that section were reviewed for innovative policies. Some of these documents did have some innovative policies, but in most cases, these were the same as or similar to official and provincial plan policies highlighted in Tables A1 through A4.

The only innovative policies that are not reflected in the tables are as follows.

- ▶ Some of the official and provincial plans reviewed allow development based on replacement of PPS-significant natural heritage features, and consideration of replacement in determining whether no negative impact has been demonstrated, but only where the proposed use is mineral aggregate extraction. The proposed planning policies in section 13.2 of *Natural Heritage System for the Lake Simcoe Watershed*, 2007 would go beyond that, by applying similar policies to allow any proposed use, in some PPS-significant feature types.
- ▶ Some of the plans speak, in general terms, to the amount of replacement required, where replacement of NHS features is permitted. The model planning policies in appendix F of Toronto and Region CA's *Terrestrial Natural Heritage System Strategy*, 2007 would go beyond that, by laying out a more detailed replacement scheme, increasing from one-for-one to three-for-one (in terms of area), the farther the replacement lands are from the subject lands. (The Toronto and Region Strategy model policies would only permit replacement of those parts of the NHS that are neither PPS-significant nor meet other stated criteria.)
- ▶ Model policy N3-1 in *Watershed Planning - From Recommendations to Municipal Policies*, 2005 is similar to, but more generally worded than, the preceding Toronto and Region policy. Also, model policy N5-1 in that document would require that where lands are removed from the NHS and replaced with other lands in accordance

with policy N3-1, it be a condition of any development approval that the replacement lands, and any remaining NHS on the subject lands, be conveyed to a public authority or land trust or made subject to a stewardship agreement with the municipality. Model policy N7-1 would require that the applicant prepare and implement a site restoration plan for the replacement lands.

- ▶ Some of the plans speak, in general terms, to replacement of NHS features where infrastructure is permitted. Model policy I2-2 in *Watershed Planning - From Recommendations to Municipal Policies* goes beyond that, by setting out policies that attempt to counteract effects on NHS lands abutting a new or expanded infrastructure corridor, so as to achieve no net loss and if possible a net gain to the NHS.

4.3 Australia

Based on the consultant's and CVC staff's knowledge and experience, it was decided that review of innovative and relevant policies outside Ontario should be directed outside Canada, and focus on Australia and the United States. After consideration of a somewhat longer list, the focus was further narrowed to Australia. The American approach to matters such as replacement and compensation is strongly oriented to regulatory approvals under federal statutes. Also, Australian states are more like Ontario than American states are, in having policy-led planning systems very much driven by state planning policies. The following Australian state plans and policies were selected for comprehensive review:

- New South Wales, South Coast Regional Conservation Plan
- New South Wales, Biodiversity Banking and Offsets Scheme
- Queensland, Environmental Offsets Policy
- Victoria, Native Vegetation Management Framework.

The *South Coast Regional Conservation Plan*, New South Wales Department of Environment, Climate Change and Water, 2010, is a guidance document for municipal planning, which is broadly similar to an Ontario provincial plan and which therefore covers many of the same considerations as are addressed in the Appendix tables A1 through A4. The other three items above are state policies applicable to planning applications and approvals that only address net ecological gain and ecological incentives, but that in doing so go far beyond anything currently practised in Ontario.

The South Coast Plan identifies an NHS consisting of areas of highest conservation value, and includes components analogous to those typically included in Ontario NHSs. The entire NHS is to be protected, except where not "possible or practicable", in which case offsets may be considered (section 8.1). The Plan provides direction for the application of biobanking (explained below), indicating priority site types for its use (8.2.2). The Plan also indicates that other types of offsets are permitted, and sets out policies for any offset provisions in local plans (8.2.3).

The results of review of the three state policies are provided in Appendix table A5.

While each state has taken a different approach, there are some important elements that the three states share:

- All permit development of some natural heritage features, provided offsets are provided (at least replacement, preferably net gain; Victoria requires net gain).
- All identify some natural heritage features as generally off-limits for development on the basis of offsets.
- All have sophisticated methodologies for determining what are acceptable offsets.
- All are looking towards marketplace solutions (the New South Wales system is entirely marketplace, while the marketplace is an option in the other states).
- All are entirely based on state statutes and state planning policies.

Everything in Table A5 constitutes innovative policy inasmuch as it represents leading-edge practice and could advance CVC's NHS (see Section 4.1). However, much of what is in Table A5, including all of the economic aspects of these policies, could not be implemented in Ontario without changes to legislation and provincial policy, and therefore does not meet the first criterion in Section 4.1. Therefore, the only policies highlighted in Table A5 are those which in the consultant's view meet all three of the Section 4.1 criteria.

4.4 Policy Gaps

One of the tasks originally requested by CVC was to "identify any policy gaps in natural heritage system policies that need to be filled to ensure long-term protection of features and functions in southern Ontario".

There are potentially three types of policy gaps.

1. Those that some Ontario jurisdictions address, but others do not. As a rule, the jurisdictions that have addressed such gaps have done so through policies that exceed the base requirements of the PPS. Some of these policies may be found in one or more provincial plans, inasmuch as those plans generally apply more restrictive policies to limited areas.
2. Those that no Ontario jurisdictions address, but would still be acceptable policies in a *Planning Act* and official plan context.
3. Those that could be addressed only through changes in legislation and provincial

policy.

This report has essentially identified type 1 policy gaps by highlighting innovative policies in the Appendix tables A1 through A4. The innovative policies in the Oro-Medonte official plan described in Section 4.1 would also fall into this category.

This report has also identified a few type 2 policy gaps, as described in Section 4.2 and highlighted in Table A5. Of course, it cannot be said with certainty that "no" Ontario jurisdictions address these areas - this report reviewed what were thought to be Ontario's most promising plans, but only a small portion of the total.

It would also have been possible for the consultant and CVC to extend the search for type 2 policy gaps by "blue-skying" for all possible policies. Such an exercise was indeed conducted by a much larger contingent of CA and municipal staff, with consultant assistance, in developing *Watershed Planning - From Recommendations to Municipal Policies*. Although this 2005 document could certainly use updating, it seems to have stood the test of time and continues to be relied on by practitioners. Section 4.2 of this report draws on the 2005 report.

As well, CVC provided and the consultant reviewed the following recent "big picture" studies by nongovernmental organizations of natural heritage policy issues; however, nothing emerged from those studies that in the consultant's view would add to what this report has presented.

- *Exploring Applications of the Net Gain Principle*, Pollution Probe for Joyce Foundation, 2004
- *The State of Greenlands Protection in South-Central Ontario*, Gartner Lee Limited for Neptis Foundation, 2004
- *Local Implementation of Smart Growth Policies in Ontario: Three Case Studies*, Carol Brunt and Mark Winfield, Pembina Institute, 2005
- *Natural Heritage Policy Gap Analysis*, Leslie Luxemburger for Natural Infrastructure Collaborative of Ontario, 2009
- *Protecting Greenbelt Wetlands: How Effective is Policy?*, Ducks Unlimited Canada, Earthroots, Ecojustice, and Ontario Nature, 2012.

Finally, while there is undoubtedly considerable scope for type 3 policy gaps (the unhighlighted parts of Table A5 would certainly fall into this category), they are clearly beyond the scope of this assignment.

5 CANDIDATE POLICIES FOR CVC CONSIDERATION

The consultant and CVC agreed that the innovative natural heritage policies described in Section 4 and highlighted in Appendix tables A1 through A5 should be put through an additional filter, in order to generate candidate policies that this report would recommend for CVC's further consideration.

This additional filter is: which policies are municipalities most likely to consider feasible and viable, to the point they would be willing to adopt them? in other words, which policies would be "best bets" in Phase 4 of the NHS project, when CVC takes forward to the municipalities that part of the project that will depend on municipal implementation?

An additional consideration in applying this filter, is whether or not this report is to recommend candidate policies that would allow NHS components to be removed, or altered beyond what has traditionally been demonstrated as constituting (in conjunction with mitigation) no negative impact, in return for component replacement, compensation, or net ecological gain. It is the position of CVC that all PPS-significant features should be considered as "no-touch" - that is, subject to the same protection as the PPS provides for significant wetlands and significant habitat of endangered and threatened species. However, policies could be considered that would allow the removal or severe alteration of NHS components that are neither PPS-significant nor considered significant by member municipalities.

Applying these considerations leaves little from the Australian experience in Table A5 that could be carried forward into specific recommendations below. However, should CVC wish to develop policies to determine the acceptability of proposed offsets or net ecological gain with respect to non-significant NHS components as described above, there are ideas in Table A5 that could be used to inform such policies, and the more detailed methodologies that have been developed to support the Australian policies would also be useful. The discussion in Bruce A. McKenney and Joseph M. Kiesecker, "Policy Development for Biodiversity Offsets: A Review of Offset Frameworks", Environmental Management, 2010, would also be helpful in informing any such offset or net gain policies.

Therefore, this report recommends the following candidate NHS policies, taking the preceding considerations into account. The policies are expressed in general terms and are intended to apply to the NHS only.

As indicated in Section 1, CVC will consider these candidate policies in developing model planning policies in Phase 4 of the NHS project. Those model policies will undoubtedly be expressed in more detailed wording appropriate for inclusion in municipal planning documents. As well, this report has focused on identifying innovative policies. CVC's model planning policies will also include a full set of basic policies that are essential for implementing the NHS, but do not meet the criteria for innovative policies set out in

Section 4.1.

For each candidate policy, the plan or plans that currently have the most clearly articulated innovative, "best bet" policies are indicated - please see the page number indicated for more detail on those policies, including citations of the original sources.

Development and uses permitted/restricted (note: in the source plans, some of these policies also apply to PPS-significant components, but for the reasons indicated above, such approaches are not advanced here)

- ▶ Permit mineral aggregate operations only in those woodlands that are not PPS-significant and are also young plantation or early successional (Halton, p. 29; Greenbelt, p. 71; Lake Simcoe Protection, p. 70; Oak Ridges Moraine, p. 70)
- ▶ Permit mineral aggregate operations in certain NHS components that are not PPS-significant, where net ecological gain demonstrated (Waterloo, pp. 43-44)
- ▶ Permit uses other than mineral aggregate operations in certain NHS components that are not PPS-significant, that would require NHS reduction or removal, where net ecological gain demonstrated (New South Wales, Queensland, and Victoria, p. 78)

Infrastructure

- ▶ Require especially rigorous consideration of alternatives (Waterloo, p. 46)
- ▶ Avoid certain NHS components (Waterloo, p. 46; York, p. 46; East Gwillimbury, p. 59)
- ▶ Prescribe location and design standards to minimize impacts (York, p. 46; East Gwillimbury, pp. 59-60; Central Pickering, p. 73; Greenbelt, p. 73; Oak Ridges Moraine, p. 73)
- ▶ Require measures on lands abutting infrastructure corridor to achieve no net loss and, if possible, net gain to NHS (Watershed Planning report, p. 11)

Lot creation

- ▶ Where lots created in certain NHS components, use site plan control to better protect features (Oak Ridges Moraine, p. 73)
- ▶ Exempt prohibition of residential lots in certain NHS components, where remainder conveyed to public authority or land trust or subject to conservation easement (Oro-Medonte, p. 9)

EIS requirements

- ▶ Require environmental implementation report (Guelph, p. 61)

Buffers

- ▶ Require minimum 30 m buffers from most NHS features (Durham, p. 32; Greenbelt, p. 74; Lake Simcoe Protection, p. 74; Oak Ridges Moraine, p. 74)

Impact mitigation

- ▶ Restrict location of mineral aggregate operations to maintain connectivity (Oak Ridges Moraine, pp. 74-75)
- ▶ Limit extent of disturbed and impervious areas on site and require minimum natural vegetation areas (Durham, pp. 32-33; Greenbelt, pp. 74-75)
- ▶ Use site plan control to maximize development separation from NHS features within lots (London, p. 62)
- ▶ Where lots part inside, part outside NHS, locate dwellings outside (Caledon, pp. 62-63)
- ▶ Prohibit dwellings other than single detached in NHS (Simcoe County, p. 48)
- ▶ Use pervious surface materials (Lake Simcoe Protection, p. 74)
- ▶ Direct lighting away from NHS (Durham, p. 32)
- ▶ Identify, and mitigate impacts at, wildlife crossings of roads (Guelph, p. 63)

Zoning requirements

- ▶ Zone certain NHS components to prohibit all structures and site alteration (Wellington, p. 49)

Relationship to water policies

- ▶ Require EIS to address relationship between NHS and water features (Halton, p. 35; Guelph, p. 64)

Ecological restoration

- ▶ Identify priority areas for restoration and enhancement (East Gwillimbury, p. 64)

- ▶ Require tree preservation and/or vegetation management plans in certain cases (Niagara, p. 35; Guelph, pp. 64-65; Greenbelt, p. 76)
- ▶ Prescribe specific restoration direction in certain cases (Caledon, p. 65; East Gwillimbury, p. 64-65; Greenbelt, p. 76; Lake Simcoe Protection, p. 76; Oak Ridges Moraine, p. 76)

Net ecological gains (note: in the source plans, some of these policies also apply to PPS-significant components, but for the reasons indicated above, such approaches are not advanced here)

- ▶ Consider replacement of NHS components that are not PPS-significant by features or functions of equal or greater value, or of greater value (net ecological gain), in approving mineral aggregate operations (Halton, p. 36; Niagara, p. 36; Caledon, p. 65; Oak Ridges Moraine, p. 77)
- ▶ Consider replacement of NHS components that are not PPS-significant by features or functions of equal or greater value in approving uses other than mineral aggregate operations (Lake Simcoe Region CA, p. 10)
- ▶ Require that mineral aggregate operations permitted in NHS components that are not PPS-significant demonstrate net ecological gain (Oro-Medonte, p. 10)
- ▶ Provide specific direction as to what constitutes net ecological gain (Oro-Medonte, p. 10; New South Wales, Queensland, and Victoria, pp. 78-81)
- ▶ Require one-for-one replacement of NHS components reduced or removed for infrastructure, plus compensatory mitigation (London, p. 65)
- ▶ Prescribe specific numerical replacement scheme for replacement of NHS components that are not PPS-significant (Toronto and Region CA, p. 10)
- ▶ Require that where NHS components that are not PPS-significant are replaced, replacement lands be conveyed to a public authority or land trust or made subject to a stewardship agreement, and that site restoration plan be prepared and implemented for such lands (Watershed Planning report, pp. 10-11)
- ▶ Where offsets permitted, require as part of planning approval an offsets agreement that may also be registered on title (Queensland, p. 79; Victoria, p. 79)
- ▶ Where development approved in certain woodlands that fail to meet PPS-significant criteria, require enhancement plan to achieve ecological gains (York, pp. 50-51)

Ecological incentives

- ▶ Investigate and consider landowner incentive programs (Peel, p. 36; Waterloo, p. 51; East Gwillimbury, p. 65).

APPENDIX: NATURAL HERITAGE SYSTEM POLICIES - COMPARATIVE REVIEW

This appendix presents five tables comparing natural heritage systems policies:

- Tables A1 and A2 - Upper Tier Official Plans
- Table A3 - Single and Lower Tier Official Plans
- Table A4 - Provincial Plans
- Table A5 - Innovative Policies in Australia.

The tables are preceded by an Notes and Explanations section, consisting of detailed notes explaining the tables. The general approach to preparing the tables is described in Section 3.2.

Notes and Explanations

The following apply to Tables A1 through A4 only.

Abbreviations

- OP = official plan
- ZB = zoning bylaw
- NHS = natural heritage system
- PPS = Provincial Policy Statement
- NE = Niagara Escarpment
- ORM = Oak Ridges Moraine
- LM = local municipality(ies)
- CA = conservation authority(ies)
- EIS = environmental impact study.

General notes

- ▶ "Setback" means the distance development is set back from a feature; a minimum setback may be prescribed by policy or an individual EIS. A "buffer" is an area subject to a setback in which vegetation, normally natural, intended to protect the feature and its functions, is retained or restored, as prescribed by either policy or an individual EIS.
- ▶ Citations in parentheses are to section (or figure) numbers (or names) in the applicable plan. They apply to all preceding policies, back up to the previous citation.
- ▶ A blank cell means the component is not included in the NHS, or there is no applicable policy.
- ▶ Innovative policies are highlighted (in grey if printed in black and white, in yellow if printed in colour or viewed on screen). The criteria used to identify these policies are described in Section 4.1.

Explanations

The following explain individual rows or sections, where required.

How designated:

- ▶ Different plans use different terms. Maps may be referred to as maps, figures, or schedules, depending on the plan.
- ▶ "Base designation" means that the designation is shown on the plan's land use map(s) as the basic designation of the subject lands. Depending on the plan, the base designation may be the only designation of the lands, or there may also be overlying designations.
- ▶ "Overlay designation" means that the designation is shown on the plan's land use map(s) as an overlay designation of the subject lands. Where this is the case, the policies of both the base designation and the overlay designation(s) apply, but the policies of the base designation are the default policies, and prevail unless explicitly overruled by the policies of the overlay designation(s).
- ▶ While plans may or may not have overlay designations for (usually) only parts of the jurisdiction, they almost always have base designations for the entire jurisdiction.

Species at risk habitat, wetlands, woodlands, valleylands, wildlife habitat, ANSIs, fish habitat:

- ▶ When "PPS" is used to describe one of these NHS components, that means that in this jurisdiction, this component coincides with the base requirements of the PPS. Those base requirements recognize the following as "significant" (that is, PPS-significant) within the Great Lakes-St. Lawrence Lowlands:
 - species at risk habitat - habitat of endangered and threatened species, as specifically approved by the Ministry of Natural Resources
 - wetlands - identified as provincially significant by MNR
 - woodlands - as identified by planning authorities using provincial or equivalent municipal criteria
 - valleylands - as identified by planning authorities using provincial or equivalent municipal criteria
 - wildlife habitat - as identified by planning authorities using provincial or equivalent municipal criteria
 - areas of natural and scientific interest (ANSIs) - identified as provincially significant by MNR
 - fish habitat - as defined by the Canada *Fisheries Act*.
- ▶ Woodlands, valleylands, and wildlife habitat may be identified in three different ways:

- The plan simply relies on the PPS definition - in the tables, "PPS" by itself.
- The plan provides its own definition, but based on the PPS terminology and definition - in the tables, "PPS" plus a text definition or reference to the plan.
- Or, the plan identifies a like feature without reference to the PPS - in the tables, "valley and stream corridors" instead of valleylands, for example.

Adjacent lands/buffers:

- ▶ These may be with respect to individual features, and/or the NHS as a whole. See the buffer prescriptions row for further information on the plan's intentions.

NHS levels section:

- ▶ Where a NHS is a two-level or three-level system, then the components described in the "NHS components" section, are allocated among the two or three levels in the "NHS levels" section. The following explanations apply, using the example of Peel Region in Table A1.
- ▶ Where a component is described in the same words as the row header for that component in the "NHS components" section of the table (e.g., "fish habitat"), without any modifier, that means that all of that component as described in the "NHS components" section of the table is included in that level. In the Peel example, all fish habitat is in Level 2.
- ▶ Where a component is described in the same words as the earlier row header but is followed by a colon (e.g., "wetlands:"), that means that part of the component as described in the "NHS components" section of the table is included in that level, and part in another level. In the Peel example, "wetlands: PPS", that is, PPS-significant wetlands - see explanation above re use of "PPS" - are in Level 1. Other evaluated wetlands are in Level 2. Level 3 includes "rest of NHS"; because the wetlands row indicates that all wetlands are included in the NHS, that means that all unevaluated wetlands are in Level 3.

Development and uses permitted/restricted section:

- ▶ "Permitted" means that the use may be permitted subject to demonstration of no negative impacts through an EIS, to the extent required as indicated in the EIS rows below, and also subject to other applicable policies of the plan.
- ▶ Passive, conservation, and existing uses are usually permitted within most NHS components. To keep the tables simpler, these uses are not included.

- ▶ Uses accessory to a main use are usually permitted within NHS components where the main use is permitted. To keep the tables simpler, accessory uses are not included.

Settlement areas:

- ▶ The policies are modifications or exceptions to the default NHS policies, that apply to settlement areas only. Outside settlement areas, the default NHS policies generally apply in their entirety.

Other impact mitigation:

- ▶ All prescriptions, including numerical restrictions, are site-specific, that is, specific to the subject lands or lot.

Table A1: Upper Tier Official Plans (1st table of 2)

	Durham Region	Halton Region	Niagara Region	Peel Region
<i>NHS basics</i>				
Plan status/version	Consolidation June 2008	Consolidation December 2009, incorporating OPA 38 (adopted December 2009 but not approved)	Consolidation December 2010	Consolidation July 2011, incorporating some OPAs adopted but not approved
Name of NHS (see Section 3.2)	Key Natural Heritage and Hydrologic Features	Regional Natural Heritage System	Core Natural Heritage System	Greenlands System
How designated (see Explanations)	overlay designation (Map B1)	base designation (Map 1)	overlay designation (Core Natural Heritage Map)	only Core Areas designated, overlay designation (Schedule A), but text designation prevails
Relationship to other OP designations (see Section 3.2)	<ul style="list-style-type: none"> - Greenlands System (base designation) encompasses, but goes beyond, regional NHS; also serves open space, countryside, and Regional structural purposes; includes Waterfront Area component and entire ORM Plan area (10.1, 10.2, 10.3.1) - NHS strongly overlaps with Major Open Space Area and Waterfront Area 	<ul style="list-style-type: none"> - Greenbelt Plan Policy Area (base designation) consists of part (northwest of NE Plan area) of Halton's Greenbelt Plan area - NHS does not cover Greenbelt Plan Policy Area; Greenbelt Plan NHS (overlay designation) complements Halton NHS (101.7) - Regional Natural Heritage System 	NHS strongly overlaps with earth science ANSIs and shorelines (separate overlay designations)	

	Durham Region	Halton Region	Niagara Region	Peel Region
	<p>components of Greenlands System</p> <ul style="list-style-type: none"> - NHS strongly overlaps with Greenbelt Plan NHS (separate overlay designation) 	<p>Overlay (overlay designation) includes areas intended to provide NHS enhancement areas and linkages while remaining part of the Agricultural Rural Area (base designation); very small area, not considered further in this table (99.1, 99.2)</p>		
NHS components (see Section 3.2)				
Species at risk habitat (see Explanations)	PPS + significant portions of special concern and rare species habitat	PPS (not necessarily included in Map 1 designation)	PPS (not necessarily included in Core Natural Heritage Map designations) + significant habitat of special concern species, COSEWIC special concern species, and NHIC S3 or rarer species	PPS
Wetlands (see Explanations)	all	PPS	PPS + other evaluated wetlands	all
Woodlands (see Explanations)	PPS	PPS, defined as woodlands ≥ 0.5 ha and identified through watershed plan or EIS as meeting ≥ 1 criteria	PPS, defined as woodlands meeting ≥ 1 criteria (7.B.1.5)	PPS, defined as woodlands ≥ 0.5 ha and meeting ≥ 1 criteria (Glossary)

	Durham Region	Halton Region	Niagara Region	Peel Region
		(277)		
Valleylands (see Explanations)	PPS	PPS	PPS	"valley and stream corridors"
Wildlife habitat (see Explanations)	PPS	PPS	PPS	all
ANSIs (see Explanations)	all life science ANSIs	PPS	all life science ANSIs	all
Fish habitat (see Explanations)	PPS	PPS	PPS	PPS
Environmentally sensitive/significant areas				as identified by CAs, both actual and potential
Water bodies (other than wetlands)	<ul style="list-style-type: none"> - all streams including intermittent - all lakes 		Greenbelt Plan Water Resource System (not necessarily included in Core Natural Heritage Map designations)	L. Ontario littoral zone
Natural heritage-related groundwater features	<ul style="list-style-type: none"> - seepage areas and springs - aquifers and recharge areas 		Greenbelt Plan Water Resource System (not necessarily included in Core Natural Heritage Map designations)	sensitive groundwater recharge areas
Hazardous lands		regulated flood plains		
Linkages	Greenlands System includes open space linkages consisting of	yes	Potential Natural Heritage Corridors	Natural Corridors

	Durham Region	Halton Region	Niagara Region	Peel Region
	natural areas and features (10.3.2)			
Provincial plan components		NE Plan Escarpment Natural Areas and Escarpment Protection Areas	Greenbelt Plan NHS and Water Resource System	<ul style="list-style-type: none"> - NE Plan Escarpment Natural Areas and Escarpment Protection Areas - Parkway Belt West Plan open space
Other features/ functions	<ul style="list-style-type: none"> - sand barrens - savannahs - tallgrass prairies - alvars - kettle lake surface catchment areas 	L. Ontario shoreline (not necessarily included in Map 1 designation)	<ul style="list-style-type: none"> - savannahs - tallgrass prairies - alvars - publicly owned conservation lands 	<ul style="list-style-type: none"> - shorelines - headwater source and discharge areas - "historic shorelines" (Lakes Iroquois and Peel) - other appropriate Natural Areas and Corridors and Potential Natural Areas and Corridors identified by LM
Adjacent lands/ buffers (see Explanations)	buffers	buffers		
NHS levels (see Explanations)				
Level 1 (most protective)	single-level system	Key Features as shown on Map 1G	Environmental Protection Areas: <ul style="list-style-type: none"> - species at risk habitat: PPS - wetlands: PPS 	Core Areas: <ul style="list-style-type: none"> - species at risk habitat - wetlands: PPS - woodlands: Core woodlands meeting

	Durham Region	Halton Region	Niagara Region	Peel Region
			<ul style="list-style-type: none"> - ANSIs: life science ANSIs PPS - Greenbelt Plan NHS and Water Resource System 	<ul style="list-style-type: none"> ≥ 1 criteria in Table 1 - valleylands: Core valley and stream corridors meeting ≥ 1 criteria in Table 1 and as per 2.3.2.2.h - ANSIs: life science ANSIs PPS - environmentally sensitive/significant areas (actual) - NE Plan Escarpment Natural Areas
Level 2		Enhancement areas, linkages, and buffers as shown on Map 1G (rest of NHS)	Environmental Conservation Areas: rest of NHS except for Level 3	Natural Areas and Corridors: <ul style="list-style-type: none"> - wetlands: other evaluated wetlands - woodlands: Natural Areas and Corridors woodlands meeting ≥ 1 criteria in Table 1 - valleylands: other valley and stream corridors - wildlife habitat: PPS meeting ≥ 1 criteria in Figure 5 - ANSIs: earth science ANSIs PPS, other life science ANSIs

	Durham Region	Halton Region	Niagara Region	Peel Region
				<ul style="list-style-type: none"> - fish habitat - natural lake shorelines - L. Ontario littoral zone - NE Plan Escarpment Protection Areas - headwater source and discharge areas - other appropriate areas identified by LM
Level 3			<ul style="list-style-type: none"> - fish habitat - Potential Natural Heritage Corridors (overlay on other components) 	Potential Natural Areas and Corridors: rest of NHS
<i>Development and uses permitted/restricted</i> (see Section 3.2 and Explanations)				
Development not permitted in these NHS components/designations			Environmental Protection Areas (7.B.1.10)	
Uses specifically not permitted throughout NHS	rural residential infill (9B.2.15), portable asphalt and concrete plants (9D.2.6), wayside pits and quarries (9D.2.7)			
Uses specifically not permitted in these NHS components/designations	Greenlands System: "urban type land uses" outside major settlement areas (10.2.2)		Environmental Protection Areas, Environmental Conservation Areas, fish habitat: stormwater management facilities	Core Areas: mineral aggregate operations (3.3.2.3)

	Durham Region	Halton Region	Niagara Region	Peel Region
			(7.A.2.7)	
Development generally permitted in these NHS components/designations when no negative impacts demonstrated			<ul style="list-style-type: none"> - Environmental Conservation Areas (7.B.1.11) - Potential Natural Heritage Corridors: should be maintained or enhanced or alternative corridor developed (7.B.1.12) 	
Uses specifically permitted in these NHS components/designations	Major Open Space Areas: agriculture, agriculture-related, secondary agricultural uses (10A.2.1); industrial agribusiness (10A.2.6); commercial kennels, small-scale landscape industry (10A.2.11, 10A.2.12)	<ul style="list-style-type: none"> - Key Features: single dwellings on existing lots, essential infrastructure, uses permitted in applicable NE Park and Open Space Plan, home occupations/cottage industries (117(1)); mineral aggregate operations outside significant woodlands that are not young plantation/early successional (110(7.1)) - NE Plan Natural Areas outside Key Features: preceding uses, beds & breakfasts, rural veterinary clinics 	<ul style="list-style-type: none"> - Environmental Conservation Areas except wetlands in Greenbelt Plan Tender Fruit and Grape lands, Fish Habitat outside Greenbelt Plan NHS: small-scale agricultural structures (7.B.1.27) - Environmental Conservation Areas and Fish Habitat: expansion of existing uses (7.B.1.26); new residences on existing lots (7.B.1.30) 	Core Areas: "minor development" as further defined in LM plan (2.3.2.5); development within flood fringe or special policy area (2.3.2.16)

	Durham Region	Halton Region	Niagara Region	Peel Region
		- rest of system: preceding uses, agriculture, agriculture-related, farm-based home and landscape industries (110(7.1))		
Uses specifically permitted throughout NHS	- mineral aggregate operations and aggregate-related industry (9D.2.9)			
Implementation policies				
Settlement areas (see Explanations)	- adjacent lands may be reduced as per EIS Guideline - EIS may be scoped as per EIS Guideline - no minimum buffer width (2.3.15)	- LM OPs to include policies for protecting NHS, supported by EIS (77.5) - design water and sewage services to minimize disruption to NHS (89(23))	Environmental Planning Study required for boundary expansion or secondary plan (7.C.2.2)	- valley and stream corridors in rural settlements not part of Core Areas (2.3.2.2) - compatible small-scale urban uses also permitted in Core Areas in urban settlements (2.3.2.16)
Infrastructure	specifically permitted (2.3.14)	specifically permitted, but must be "essential" (117.1)	specifically permitted, but must be "essential" (7.B.1.14)	specifically permitted in Core Areas, but must be "essential" (2.3.2.5)
Lot creation	Major Open Space Areas: consents considered for: - agriculture and agriculture-related (10A.2.3) - industrial agribusiness		not in areas to be maintained in natural state (7.B.1.18)	

	Durham Region	Halton Region	Niagara Region	Peel Region
	(10A.2.6)			
EIS name	environmental impact study	environmental impact assessment	environmental impact study	environmental impact study
EIS specifications	yes (2.3.42, Table E8), plus separately issued 1999 Guideline	separately issued 2005 Guidelines as required by 141.3	yes (7.B.2.2), plus separately issued 2001 Guidelines	LM to establish and administer requirements (2.3.2.22)
When EIS required	all applications (2.3.42)	all applications except: <ul style="list-style-type: none"> - single dwellings and smaller farm buildings ≥ 30 m from Key Features - larger farm buildings ≥ 30 m from NHS - any uses permitted by ZB or otherwise exempted from EIS by LM OP (118.3) 	<ul style="list-style-type: none"> - all applications except: <ul style="list-style-type: none"> - expansions of existing use in Environmental Conservation Areas or fish habitat not involving "substantial intensification" (7.B.1.26) - farm structures not involving "substantial intensification" (7.B.1.27) - single new residential lot in adjacent lands with standard mitigation (7.B.1.30) - may reduce scope where justified (7.B.2.3) 	all applications; may reduce requirements where justified (2.3.2.22)

	Durham Region	Halton Region	Niagara Region	Peel Region
Adjacent land widths	120 m (2.3.16)	120 m (118.3)	- wetlands PPS: 120 m - fish habitat: 30 m - all other: 50 m (7.B.1.11)	LM to determine (2.3.22)
Buffer prescriptions	- "vegetation protection zone", determined by EIS - ≥ 30 m from wetlands, significant woodlands, fish habitat, water bodies, seepage areas and springs (2.3.16)		- ≥ 30 m from critical fish habitat; 15 to 30 m if justified by EIS - ≥ 15 m from important or marginal fish habitat; less if justified by EIS (7.B.1.15)	
Other impact mitigation (see Explanations)	- direct outdoor lighting away from NHS (2.2.12) - Major Open Space Areas, agriculture excepted: - avoid removal of non-NHS natural features - disturbed area $\leq 25\%$ of site, impervious area $\leq 10\%$ (major recreation, mineral aggregate excepted; golf courses, disturbed area $\leq 40\%$) (10A.2.2)			

	Durham Region	Halton Region	Niagara Region	Peel Region
	<ul style="list-style-type: none"> - natural vegetation area $\geq 30\%$ of site (mineral aggregate excepted) - maintain/enhance connectivity between NHS ≤ 240 m apart - lot coverage $\leq 25\%$ (10A.2.4) 			
Local OP requirements	<ul style="list-style-type: none"> - identify NHS in greater detail (2.3.13) - include "complete valley system" not on Map B1 (2.3.49) - identify and establish policy for open space linkages (10.3.2) - establish policy for industrial agribusiness and small-scale landscape industry in major open space areas (10A.2.6, 10A.2.12) 	implement EIS recommendations (118.4)		<ul style="list-style-type: none"> - identify Core Areas in greater detail (7.2.2.3) - identify and protect Natural Areas and Corridors and Potential Natural Areas and Corridors (2.3.2) - evaluate and protect unevaluated wetlands (2.3.2.13) - include plantations within woodlands unless otherwise justified by study, and include cultural woodlands and cultural savannahs within woodlands (2.3.2.17) - establish policies for valley and stream corridors in rural

	Durham Region	Halton Region	Niagara Region	Peel Region
				settlement areas (2.3.2.14) - develop policies to restore, enhance, and manage system (2.3.2.3, 2.3.2.10) - establish policies for allowing uses specifically permitted in Core Areas that ensure development only where no reasonable alternative and impacts minimized (2.3.2.5) - establish EIS requirements (2.3.2.22)
Zoning requirements		- implement EIS recommendations (118.4) - prohibit structures in PPS wetlands except in special policy areas (118.11)		
NHS boundary refinements not requiring OPA	- "minor modifications" based on updated or more detailed information (14.2.7) - "further confirmed" through watershed	based on LM area-specific (secondary) plans, subwatershed studies, EISs (116.1)	- "not significant" (<20% in extent), based on LM OPs, watershed and other studies, EISs - only "minor" changes	- "minor adjustments" to Core Areas in LM OPs consistent with text definition and based on site-specific studies (2.3, 7.2.2.3)

	Durham Region	Halton Region	Niagara Region	Peel Region
	plans or EISs (2.3.13)		to Environmental Protection Areas (7.B.1.7) - additional features through site-specific study (7.B.1.8)	- valley and stream corridors - subwatershed and site-specific studies (2.3.2.15)
Relationship to water policies	water bodies and some groundwater features included in NHS	- water quantity and quality protection part of NHS function (114.1(8)) - encourage watercourse and headwater protection and promote integration with NHS (145.10) - restrict development and require EIS in or near sensitive water features (145.23)	- Greenbelt Plan Water Resource System included in NHS (7.B.1.1) - water quantity and quality protection directly tied to NHS protection (7.A.2.1)	some water bodies and some groundwater features included in NHS
Ecological restoration	if damaged or destroyed, no change in designation, and restoration required (10.2.5)	policies to promote restoration aspect of rehabilitation of pits/quarries within NHS (110(7.2))	- Tree Saving Plan "maintaining or enhancing . . . remaining . . . features" required where development to occur (7.B.1.19) - shoreline to be maintained in/restored to natural vegetation where major	- if Core Areas damaged or destroyed, no change in designation, and replacement or rehabilitation required (2.3.2.6) - various policies encouraging restoration (2.5.2), invasive species management (2.5.3),

	Durham Region	Halton Region	Niagara Region	Peel Region
			development (7.A.5.4)	and stewardship (2.6)
Net ecological gain		"net environmental gain" additional consideration in approval of mineral aggregate operations; involves rehabilitation to function as part of NHS with ecological functions enhanced (110(7.1))	replacement by features/functions of equal or greater value additional consideration in approval of mineral aggregate operations (7.B.1.31)	
Ecological incentives				<ul style="list-style-type: none"> - research and consider incentives including "tax rebates, incentive payments and cost-shared stewardship programs" (2.6.2.8) - investigate "providing financial incentives to farmers for the provision, protection and enhancement of ecological goods and services (3.2.2.15)

Table A2: Upper Tier Official Plans (2nd table of 2)

	Simcoe County	Waterloo Region	Wellington County	York Region
<i>NHS basics</i>				
Plan status/version	Adopted November 2008	Approved by MMAH December 2010 - under appeal	Consolidation February 2011 <i>This Plan is also the OP for the LMs</i>	Approved by MMAH September 2010 - under appeal
Name of NHS (see Section 3.2)	Greenlands	Greenlands Network	Greenlands System	Regional Greenlands System
How designated (see Explanations)	base designation (Schedule 5.1)	overlay designation (Map 3) (no base designations outside urban areas)	base designation (Schedule A)	overlay designation in Greenbelt Plan Protected Countryside; base designation elsewhere (Maps 1 & 2)
Relationship to other OP designations (see Section 3.2)				
<i>NHS components</i> (see Section 3.2)				
Species at risk habitat (see Explanations)	PPS (not necessarily included in Schedule 5.1 designation)	PPS + endangered and threatened species habitat under Canada <i>Species at Risk Act</i> (not necessarily included in Map 4 designations)	endangered and threatened species habitat (plan unclear whether PPS or all)	<i>Asterisked components constitute "key natural heritage features/key hydrologic features" and are not necessarily included in the NHS designation</i> significant (undefined)

	Simcoe County	Waterloo Region	Wellington County	York Region
				habitat of endangered and threatened species regulated under <i>Endangered Species Act, 2007</i> + habitat of special concern species regulated under <i>ESA</i> (not contemplated by Act)*
Wetlands (see Explanations)	all ≥ 2 ha	PPS	all	<ul style="list-style-type: none"> - ORM Plan area, Greenbelt Plan area, Lake Simcoe Protection Plan area: all evaluated wetlands (Map 4)* - elsewhere: PPS (Map 4)*
Woodlands (see Explanations)	PPS, defined as woodlands $\geq 2, 4,$ or 10 ha, depending on location (5.8)	PPS, defined as woodlands > 4 ha and meeting 2 criteria (7.C.6)	PPS, defined as woodlands > 10 ha	<ul style="list-style-type: none"> - PPS, defined as woodlands meeting ≥ 1 criteria (2.2.39)* - however, not considered significant if: <ul style="list-style-type: none"> - in most settlement areas or otherwise outside ORM Plan area or Greenbelt Plan area, and - meet 3 criteria (2.2.45)
Valleylands (see Explanations)	PPS, defined within areas	- "environmentally sensitive"	all	PPS*

	Simcoe County	Waterloo Region	Wellington County	York Region
Explanations)	of CA jurisdiction as regulated valley and stream corridors (5.8)	significant valley features" meeting criteria (7.C.7) - "significant valleys" (overlay on other NHS components and including all environmentally significant valley features)		
Wildlife habitat (see Explanations)	PPS, defined as specific habitat types (5.8)	may be included in environmentally sensitive landscapes	all	PPS*
ANSIs (see Explanations)	all	PPS + all other life science ANSIs (included in environmentally sensitive policy areas)	PPS + all other ANSIs County considers regionally significant	all (Map 3)*
Fish habitat (see Explanations)	protected through separate policy (4.5.30)	protected through separate policy (7.D.1)	PPS	PPS*
Environmentally sensitive/significant areas		- "environmentally sensitive policy areas" meeting criteria (7.C.5) - "environmentally sensitive landscapes" (overlay on other NHS components) meeting criteria (7.B.5)	as identified by County	as identified by LMs and CAs (Map 3)*
Water bodies (other than wetlands)		Conestogo, Grand, Nith, and Speed Rs. (included	all streams, some lakes	- all streams including intermittent (Map 4)*

	Simcoe County	Waterloo Region	Wellington County	York Region
		in significant valleys)		- all lakes (Map 4)*
Natural heritage-related groundwater features		<ul style="list-style-type: none"> - "Regional recharge areas" (overlay on other NHS components) - "environmentally significant discharge areas and environmentally significant recharge areas" (outside Regional recharge areas; not mapped) 		seepage areas and springs*
Hazardous lands			yes	
Linkages	Linkage Areas	yes (not mapped); to be identified through future study		
Provincial plan components	<ul style="list-style-type: none"> - NE Plan Escarpment Natural Areas and Escarpment Protection Areas - ORM Plan Natural Core Areas and Natural Linkage Areas - Greenbelt Plan NHS 	Greenbelt Plan NHS (overlay on other NHS components)		<ul style="list-style-type: none"> - ORM Plan Natural Core Areas and Natural Linkage Areas - Greenbelt Plan NHS
Other features/functions	<ul style="list-style-type: none"> - sand barrens, savannahs, tallgrass prairies, alvars (included in wildlife 		"plant habitat"	<ul style="list-style-type: none"> - sand barrens, savannahs, tallgrass prairies* - Lake Simcoe

	Simcoe County	Waterloo Region	Wellington County	York Region
	habitat) - Crown lands			shoreline*
Adjacent lands/ buffers (see Explanations)				
NHS levels (see Explanations)				
Level 1 (most protective)	single-level system	Core Environmental Features: - species at risk habitat - wetlands - woodlands - valleylands: environmentally significant valley features - environmentally sensitive policy areas	Core Greenlands: - species at risk habitat - wetlands - valleylands: hazardous lands - fish habitat? (plan unclear)	single-level system (as indicated above, key natural heritage features/key hydrologic features not necessarily included in NHS designation)
Level 2		Landscape Level Systems: - valleylands: significant valleys - environmentally sensitive landscapes - Regional recharge areas - Greenbelt Plan NHS	Greenlands: rest of NHS	
Level 3		Supporting Environmental Features: rest of NHS		

	Simcoe County	Waterloo Region	Wellington County	York Region
<i>Development and uses permitted/restricted</i> (see Section 3.2 and Explanations)				
Development not permitted in these NHS components/designations	wetlands (3.8.13)	environmentally significant discharge areas, environmentally significant recharge areas, and lands contiguous to the preceding, documented as sustaining Core Environmental Features (7.E.4)		<ul style="list-style-type: none"> - wetlands and buffers (2.2.34, 2.2.35) - woodlands and buffers (2.2.44)
Uses specifically not permitted throughout NHS	<ul style="list-style-type: none"> - community facilities and services "discouraged" (4.2.1) - wayside pits and quarries, portable asphalt and concrete plants "discouraged" (4.4.8) 			<ul style="list-style-type: none"> - mineral aggregate operations, wayside pits and quarries, portable asphalt plants - waste disposal sites (2.1.23)
Uses specifically not permitted in these NHS components/designations		environmentally sensitive landscapes: various industrial, commercial, institutional, recreational, and intensive agricultural uses (7.B.10)		
Development generally permitted in these NHS components/designations when			<ul style="list-style-type: none"> - non-PPS wetlands: "development that would [not] seriously impair their future ecological functions" 	

	Simcoe County	Waterloo Region	Wellington County	York Region
no negative impacts demonstrated			(5.4.1) - non-PPS ANSIs (5.5.2) - environmentally sensitive areas (5.5.5) - water bodies (5.5.6) - plant habitat (5.5.1)	
Uses specifically permitted in these NHS components/designations	wildlife habitat PPS, all ANSIs, woodlands PPS, valleylands PPS: agriculture, agriculture-related, secondary agricultural uses; mineral aggregate operations (3.8.14)	<ul style="list-style-type: none"> - Core Environmental Features and contiguous lands: mineral aggregate operations (only in contiguous lands, and lands outside woodlands PPS, environmentally significant valley features, and environmentally sensitive policy areas), and minor alterations to legal nonconforming (7.C.8, 9.C.6, 9.C.8) - woodlands PPS, environmentally significant valley features, and environmentally sensitive policy areas: mineral aggregate operations, subject to EIS and: <ul style="list-style-type: none"> - habitats of types 		

	Simcoe County	Waterloo Region	Wellington County	York Region
		<p>that "can be effectively replaced or restored"</p> <ul style="list-style-type: none"> - replacement habitat "of greater extent and/or ecological value as part of the rehabilitation plans to promote a net ecological gain" (7.C.8, 9.C.6) - environmentally sensitive landscapes: <ul style="list-style-type: none"> - agriculture-related or secondary agricultural uses, recreational and tourism uses, rural institutional uses, and minor intensification of existing uses, subject to buffers and protection of natural features by zoning or conservation easement (7.B.9) - mineral aggregate operations, subject to specified habitats extracted being capable of 		

	Simcoe County	Waterloo Region	Wellington County	York Region
		replacement/ restoration in short/ medium time scale (9.C.10)		
Uses specifically permitted throughout NHS				
Implementation policies				
Settlement areas (see Explanations)	<ul style="list-style-type: none"> - settlement expansions require EIS demonstrating no negative impact (3.5.12) - various uses permitted elsewhere in NHS without EIS; require EIS in settlement areas (3.8.15, 3.8.17) - additional social criteria and social value considerations apply to EIS (3.8.17) 	<ul style="list-style-type: none"> - environmentally sensitive landscapes: <ul style="list-style-type: none"> - no settlement expansions (7.B.6) - lot creation and development generally permitted within existing settlement areas (7.B.7, 7.B.8) - regional recharge areas: <ul style="list-style-type: none"> - no settlement expansions, except for enlargement of certain existing uses (7.B.24) - development within settlement areas may not include high-risk/high-impact uses and will meet 		<ul style="list-style-type: none"> - identify NHS "more specifically" and integrate into community design - OP policies to encourage linkage, restoration, and enhancement (2.1.9, 2.1.10) - no development in local NHS within major urban areas (2.1.11) - new settlement areas and secondary plans require Greenlands System Plans to protect and enhance NHS and key natural heritage/ hydrologic features (5.6.14, 2.1.13)

	Simcoe County	Waterloo Region	Wellington County	York Region
		other best-practice standards (7.B.25)		
Infrastructure	<ul style="list-style-type: none"> - specifically permitted, but with environmental assessment process complete, and be "necessary", or "essential" if in otherwise no-development feature (3.3.5, 3.8.19) - EIS required unless no negative impacts already demonstrated (3.8.19) 	<ul style="list-style-type: none"> - specifically permitted - EIS required (7.C.8, 7.C.11, 7.B.15) - Core Environmental Features and environmentally significant landscapes: <ul style="list-style-type: none"> - policy direction re approval depends on EIS results, need, and feasibility of alternatives - Region will not approve/support if impacts major, and there are feasible alternatives with lesser impacts (7.C.12, 7.B.16) - environmentally significant discharge areas and environmentally significant recharge areas: avoid where feasible (7.E.4) 		<ul style="list-style-type: none"> - specifically permitted "if no other practical location exists" (2.1.12) - sensitive and innovative design and construction to minimize impacts and enhance NHS; avoid key natural heritage/hydrologic features (2.1.14, 2.1.15)
Lot creation	not in: <ul style="list-style-type: none"> - species at risk habitat PPS 	not in environmentally sensitive landscapes, except for recreational	<ul style="list-style-type: none"> - only if no negative impacts - development (including 	

	Simcoe County	Waterloo Region	Wellington County	York Region
	<ul style="list-style-type: none"> - wetlands ≥ 2 ha - woodlands PPS, valleylands PPS, wildlife habitat PPS, ANSIs PPS, linkage areas, except for agricultural or aggregate use (3.3.14) 	and tourism uses, rural institutional uses, farm-related residential (7.B.8, 7.B.9)	buffers) must be outside Core Greenlands (10.2.1, 10.3.2)	
EIS name	environmental impact statement	environmental impact statement	environmental impact assessment	environmental impact statement
EIS specifications	yes (Appendix 1)	yes (7.G), plus separately issued 2010 draft Guideline	yes (4.6.3, 5.6.3)	<ul style="list-style-type: none"> - minimal (2.1.8) - LM to establish detailed requirements (2.2.8)
When EIS required	<ul style="list-style-type: none"> - all applications except where no natural heritage features (3.8.11, 3.8.15) - may reduce requirements where justified (Appendix 1) 	<ul style="list-style-type: none"> - all applications except where watershed or comparable study completed (7.A.9, 7.B.12) - required on lands "contiguous" to Core Environmental Features and environmentally sensitive landscapes (7.C.9, 7.B.12) - may reduce requirements where justified (7.G.4) 	<ul style="list-style-type: none"> - at municipal discretion - also may be required in adjacent lands (5.6.3) 	all applications (2.1.8)

	Simcoe County	Waterloo Region	Wellington County	York Region
Adjacent land widths	<ul style="list-style-type: none"> - species at risk PPS and all wetlands \geq 2 ha: 120 m - woodlands PPS, wildlife habitat PPS, ANSIs PPS, fish habitat: 50 m - valleylands PPS: 30 m (3.8.20) 		<ul style="list-style-type: none"> - wetlands PPS: 120 m - all other: 30 m (5.6.4) 	120 m (2.1.8)
Buffer prescriptions	encouraged, up to 30 m (4.5.36)	<ul style="list-style-type: none"> - determined by EIS - \geq 10 m from Core Environmental Features (7.C.10) 		<ul style="list-style-type: none"> - \geq 30 m from wetlands (2.2.34) - \geq 10 m from woodlands dripline (2.2.43)
Other impact mitigation (see Explanations)	dwelling limited to one detached per lot (3.3.2)			
Local OP requirements	<ul style="list-style-type: none"> - identify and protect County NHS (4.10.7) - identify and protect complementary local NHS, including critical fish habitat and significant landform features (3.8.12, 4.10.7) - require EIS for County and local NHS (3.8.12) 	<ul style="list-style-type: none"> - identify and protect Core Environmental Features and Landscape Level Systems (7.A.2) - identify, protect, and restore environmentally significant discharge areas and environmentally significant recharge areas (7.E.3) 	not applicable	<ul style="list-style-type: none"> - identify and protect local NHS which become part of Region NHS (2.1.4) - identify and protect key natural heritage/hydrologic features - establish EIS requirements (2.2.8) - local OPAs within NHS not exempt from Regional approval (8.3.8)

	Simcoe County	Waterloo Region	Wellington County	York Region
		- require linkages be incorporated into development design (7.E.7)		
Zoning requirements		protectively zone required buffers and natural features where development takes place in environmentally sensitive landscapes (7.B.9)	zone Core Greenlands to prohibit structures and site alteration (5.6.2)	
NHS boundary refinements not requiring OPA	based on more detailed mapping, field surveys, MNR/CA information, EISs, LM plans (3.8.23)	Core Environmental Features and Landscape Level Systems: "interpreted" through EISs (7.A.6)	"minor adjustments" based on more detailed mapping (5.6.7)	- modifications to incorporate local NHS (2.1.5) - refinements through "periodic updates" (2.1.6)
Relationship to water policies		- major rivers and some groundwater features included in NHS - surface and groundwater features criteria in designation of environmentally sensitive policy areas and environmentally sensitive landscapes (7.B.5, 7.C.5)	all streams and some lakes included in NHS	
Ecological restoration	if damaged or destroyed, no change in designation,	- if illegally damaged or destroyed, not		- if removed without authorization,

	Simcoe County	Waterloo Region	Wellington County	York Region
	and restoration required (3.8.24)	recognized as existing condition, and restoration may be required (7.A.12) - various policies encouraging restoration (7.1.8), invasive species management (7.1.12-7.1.14), and stewardship (7.1.9) - environmentally sensitive landscapes: prepare guidelines for each unit including enhancement opportunities (7.B.11) - linkages: restoration encouraged (7.E.8)		restoration required (2.2.6) - various policies encouraging stewardship (2.2.32, 2.2.49)
Net ecological gain				- NHS to be enhanced through various measures "to achieve ecological gains" (2.1.7) - where woodland within NHS and would be significant except for 2.2.45, permitted development requires enhancement plan that provides "ecological

	Simcoe County	Waterloo Region	Wellington County	York Region
				<p>gains" (2.2.46)</p> <ul style="list-style-type: none"> - where Greenlands System Plan required, to demonstrate how infrastructure within NHS contributes to "overall ecological gain" (5.6.14)
Ecological incentives		<ul style="list-style-type: none"> - may create "financial incentives program to assist private landowners with stewardship initiatives" (7.I.15) - environmentally sensitive landscapes: prepare guidelines for each unit including "stewardship programs such as technical assistance of financial incentives" (7.B.11) 		

Table A3: Single and Lower Tier Official Plans

	Guelph City	London City	Caledon Town	East Gwillimbury Town
<i>NHS basics</i>				
Plan status/version	OPA 42, approved by MMAH February 2011, under appeal (amending consolidation November 2006)	Consolidation 2011	Consolidation December 2008 <i>Also subject to Peel Region OP</i>	Adopted June 2010 <i>Also subject to York Region OP</i>
Name of NHS (see Section 3.2)	Natural Heritage System	Natural Heritage System	Ecosystem Framework	Natural Heritage System
How designated (see Explanations)	Significant Natural Areas, base designation; Natural Areas, overlay designation (Schedule 1)	overlay designation (Schedule B1)	Environmental Policy Area, base designation (Schedule A and settlement area land use schedules); Supportive Natural Systems and Natural Linkages, text description only	in ORM Plan Area, Key Natural Heritage Features and Hydrologically Sensitive Features, overlay designation (Schedule D-2); elsewhere, Environmental Protection Area, base designation (Schedules B and C)
Relationship to other OP designations (see Section 3.2)		NHS strongly overlaps with open space and environmental review (base designations)		Primary and Supporting Environmental Corridors identified on Schedule D but not part of NHS
<i>NHS components</i> (see Section 3.2)				
Species at risk habitat (see Explanations)	PPS + "potential habitat for significant species" (name variable) meeting 1 criterion (6.1.6.3.2)	all? (plan unclear)	all (not necessarily included in Schedule A designation)	<i>Description of NHS components and levels does not apply within ORM Plan area</i>

	Guelph City	London City	Caledon Town	East Gwillimbury Town
				PPS
Wetlands (see Explanations)	all? (definitions unclear) (Schedule 10A)	all (Schedule B1)	all	PPS + all others >0.5 ha
Woodlands (see Explanations)	PPS, defined as woodlands meeting 1 criterion (6.1.5.5.2) or cultural woodlands ≥ 1 ha (6.1.6.2.2, Glossary) (Schedule 10C)	<ul style="list-style-type: none"> - PPS, defined based on considerations and as per separately issued 2006 Guidelines - non-significant woodlands on City lands or that owner wishes to protect (15.4.5, Schedule B1) - "unevaluated vegetation patches" (Schedule B1) 	all	<ul style="list-style-type: none"> - core woodlands: woodlands ≥ 4 or 10 ha, depending on location, or ≥ 0.5 ha within 30 m of Core Areas - supporting woodlands: cultural thickets, and all other woodlands ≥ 2 ha? (plan unclear)
Valleylands (see Explanations)	PPS, defined as undeveloped hazardous lands and other ecologically important undisturbed valleylands (Schedule 10D)	<ul style="list-style-type: none"> - "significant river, stream and ravine corridors" - "unevaluated stream and ravine corridors" (Schedule B1) - additional may be identified based on considerations (15.4.6) 	"valley and stream corridors"	PPS, defined as ≥ 25 m wide, ≥ 50 m long, and ≥ 5 m deep with slopes $\geq 15\%$
Wildlife habitat (see Explanations)	PPS, defined as habitat meeting 1 criterion (6.1.5.8.2) (Schedule	PPS, to be identified through future study		<ul style="list-style-type: none"> - core wildlife habitat: core deer yards, colonial waterbird

	Guelph City	London City	Caledon Town	East Gwillimbury Town
	10E)			nesting sites, and rare vegetation communities - supporting wildlife habitat: grassland communities > 10 to 20 ha depending on type
ANSIs (see Explanations)	all (Schedule 10A)	all (only PPS on Schedule B1)	all	all
Fish habitat (see Explanations)	PPS (Schedule 10B)	PPS, to be identified through future study	"fishery resource areas" (6.7)	included in water bodies
Environmentally sensitive/significant areas		- as identified by City, both recognized and potential (Schedule B1) - additional may be identified if meet ≥ 2 criteria (15.4.1.3)	as identified by CAs, both recognized and potential	
Water bodies (other than wetlands)	- all streams including intermittent (Schedule 10B) - all lakes			- all streams - all lakes, except offline ponds > 30 m from NHS
Natural heritage-related groundwater features	- seepage areas and springs - recharge/discharge areas	areas of significant recharge, headwaters, and aquifers, "where necessary to protect their hydrological function" (Schedule B1)	- bedrock and surficial aquifers - recharge/discharge areas	

	Guelph City	London City	Caledon Town	East Gwillimbury Town
Hazardous lands	yes			
Linkages	Ecological Linkages (6.1.5.8.3 & Glossary) (Schedule 10)	<ul style="list-style-type: none"> - Upland Corridors, some schematically shown on Schedule B1, to be identified through future study - Potential Naturalization Areas, some schematically shown on Schedule B1, to be identified through future study 	Natural Linkages - not a standalone component; consists of several other components	Proximity Linkages, schematically shown on Schedule D (not included in Environmental Protection Area designation)
Provincial plan components			<ul style="list-style-type: none"> - NE Plan Escarpment Natural Areas and Escarpment Protection Areas - ORM Plan Key Natural Heritage Features and Hydrologically Sensitive Features 	ORM Plan Key Natural Heritage Features and Hydrologically Sensitive Features
Other features/ functions	<ul style="list-style-type: none"> - Portions of Paris & Galt Moraines meeting criteria (6.1.5.7.2) (Schedule 10D) - Restoration Areas (6.1.5.9.2) (Schedule 10) - known and potential wildlife crossings (Schedule 10) 		<ul style="list-style-type: none"> - productive soils - erosion-prone soils - slopes > 15% 	

	Guelph City	London City	Caledon Town	East Gwillimbury Town
Adjacent lands/ buffers (see Explanations)	- minimum setbacks (Table 6.1), and buffers established through EISs		- wetlands adjacent lands - ORM Plan Minimum Vegetation Protection Zones	
NHS levels (see Explanations)				
Level 1 (most protective)	<p>Significant Natural Areas:</p> <ul style="list-style-type: none"> - species at risk habitat: PPS - wetlands: PPS + other wetlands considered locally significant - woodlands: PPS that are not cultural woodlands - valleylands - wildlife habitat - ANSIs - fish habitat - water bodies - groundwater features - Ecological Linkages - portions of Paris & Galt Moraines - setbacks/buffers from preceding - Restoration Areas 	<p>Portions of NHS designated Open Space on Schedule A, generally excluding only the components in Levels 2 and 3</p>	<p>Environmental Policy Area:</p> <ul style="list-style-type: none"> - species at risk habitat - wetlands: "wetland core areas" as identified by Town - woodlands: PPS, as identified by Town - valleylands - ANSIs: all life science - fish habitat: "core fishery resource areas" as identified by Town - recognized environmentally significant areas - NE Plan Escarpment Natural Areas - ORM Plan Key Natural Heritage Features, Hydrologically Sensitive Features, Minimum Vegetation Protection Zones 	<p>Core Areas (Schedules D and D-1): all NHS except for Supporting Areas</p>

	Guelph City	London City	Caledon Town	East Gwillimbury Town
Level 2	Natural Areas: <ul style="list-style-type: none"> - species at risk habitat: potential habitat for significant species - wetlands: all other wetlands? (definitions unclear) - woodlands: cultural woodlands - setbacks/buffers from preceding 	Portions of NHS designated Environmental Review on Schedule A, generally including: <ul style="list-style-type: none"> - wetlands: unevaluated wetlands - woodlands: some unevaluated vegetation patches - valleylands: unevaluated stream and ravine corridors - potential environmentally significant areas 	Supportive Natural Systems and Natural Linkages: <ul style="list-style-type: none"> - rest of NHS 	Supporting Areas (Schedules D & D-1): <ul style="list-style-type: none"> - woodlands: supporting woodlands - wildlife habitat: supporting wildlife habitat - linkages
Level 3	wildlife crossings	Portions of NHS designated neither Open Space nor Environmental Review		
<i>Development and uses permitted/restricted</i> (see Section 3.2 and Explanations)				
Development not permitted in these NHS components/designations	Significant Natural Areas, except ANSIs, and buffers to Paris & Galt Moraines and Restoration Areas (6.1.5.1.3, 6.1.5.3.3.1, 6.1.5.4.3.1, 6.1.5.5.3.1, 6.1.5.6.3.1, 6.1.5.7.3.1, 6.1.5.8.3.1, 6.1.5.9.3.1)	Open Space designation, except for expansion of existing uses subject to EIS (15.3.2)	potentially environmentally significant areas, until status determined by CA (3.1.5.6.2)	Core Areas, except for expansion of existing uses subject to EIS (4.1.2, 5.1.11, 5.2.3)

	Guelph City	London City	Caledon Town	East Gwillimbury Town
Uses specifically not permitted throughout NHS				
Uses specifically not permitted in these NHS components/designations				
Development generally permitted in these NHS components/designations when no negative impacts demonstrated	<ul style="list-style-type: none"> - other wetlands not part of Significant Natural Areas and meeting other criteria (6.1.6.1.3) - cultural woodlands not part of Significant Natural Areas and dominated by invasive species (6.1.6.2.3.1) - potential habitats of lower-ranked significant species (6.1.6.3.3.1) 	Portions of NHS designated neither Open Space nor Environmental Review	<ul style="list-style-type: none"> - wetlands that are not wetland core areas (3.1.5.4.2) - woodlands that are not PPS (3.1.5.3.2) - fishery resource areas that are not core fishery resource areas (3.1.5.10.3) 	Supporting Areas, if feature removal "cannot be reasonably avoided", and subject to replacement on or off site (5.3.3, 5.4.1)
Uses specifically permitted in these NHS components/designations		Environmental Review designation: agriculture, recreation, essential municipal services (8B.3)	Environmental Policy Area: minor expansions of existing uses, single dwellings on existing vacant lots, low-intensity recreation, mineral aggregate operations on certain lands specifically	

	Guelph City	London City	Caledon Town	East Gwillimbury Town
			so designated or in certain components subject to impact criteria (5.7.3.1.2, 5.7.3.2.4, 5.7.3.3.4, 5.7.3.6.3, 5.11.2.2.6)	
Uses specifically permitted throughout NHS	minor expansions of existing uses (6.1.4.2.2)			
Implementation policies				
Settlement areas (see Explanations)	entire City is settlement area		<ul style="list-style-type: none"> - expansion to include Environmental Policy Area "discouraged" (5.7.3.1.7) - portions of certain components in Bolton and Caledon East that would otherwise be Environmental Policy Area not so designated 	
Infrastructure	<ul style="list-style-type: none"> - specifically permitted, but must in many cases be "essential", subject to EIS, in: <ul style="list-style-type: none"> - established buffers to wetlands (6.1.5.3.3.4, 6.1.6.1.3.4) - established buffers 	<ul style="list-style-type: none"> - specifically permitted, but discouraged (15.3.2, 15.3.3) - in Environmental Review designation, must be "essential" (8B.3) - EIS required (15.3.3.i) - combine corridors 	<ul style="list-style-type: none"> - specifically permitted in Environmental Policy Area, but must be "essential" - subject to EIS (5.7.3.5.1) 	<ul style="list-style-type: none"> - not in wetlands PPS or species at risk habitat (7.1.5) - specifically permitted in rest of NHS if "no reasonable alternative" (7.1.4) - provides design considerations to

	Guelph City	London City	Caledon Town	East Gwillimbury Town
	<ul style="list-style-type: none"> to woodlands (stormwater management only) (6.1.5.5.3.3, 6.1.6.2.3.5) - valleylands (6.1.5.6.3.2) - wildlife habitat PPS, Ecological Linkages (6.1.5.8.3.2) - fish habitat, water bodies (6.1.5.4.3.2) - Paris & Galt Moraines (6.1.5.7.3) - Restoration Areas (stormwater management only) (6.1.5.9.3.2) - plan intends to distinguish between infrastructure types? (definitions unclear) - major power lines and pipelines to avoid NHS "to the extent possible" (4.6.4.b) 	<ul style="list-style-type: none"> where possible (15.3.3.ii) - see also Net Ecological Gain below 		<ul style="list-style-type: none"> minimize impacts on NHS outside urban area (7.1.7) - no stormwater ponds unless approved by CA (7.4.3)
Lot creation			<ul style="list-style-type: none"> - not if wholly within Environmental Policy Area (5.7.3.3.1) - require EIS if partly 	

	Guelph City	London City	Caledon Town	East Gwillimbury Town
			within or adjacent to Environmental Policy Area (5.7.3.3.2)	
EIS name	environmental impact study	environmental impact study	environmental impact study and management plan	natural heritage evaluation
EIS specifications	yes (6.2.3)	yes (15.5.1), plus separately issued 2003 Guidelines	minimal (5.7.3.7.2)	yes (Appendix 4)
When EIS required	<ul style="list-style-type: none"> - all applications except in groundwater features (6.1.4.6, 6.2.2.6) - may reduce scope and requirements where justified (6.1.4.3, 6.2.2.4) - environmental implementation report also required (6.2.4) 	<ul style="list-style-type: none"> - all applications, including adjacent lands - may reduce scope where justified (15.5.1) 	<ul style="list-style-type: none"> - all applications in Environmental Policy Area, including adjacent lands - at municipal discretion in Supportive Natural Systems and Natural Linkages (3.1.4.6, 3.1.4.7, 3.1.5.1) - may reduce scope where justified (5.7.3.5.2, 5.7.3.7.7) 	<ul style="list-style-type: none"> - all applications, including adjacent lands (5.2.4, 5.3.1) - may reduce scope where justified (5.5.3)
Adjacent land widths	<ul style="list-style-type: none"> - species at risk habitat, wetlands PPS, locally significant wetlands, fish habitat, streams: 120 m - ANSIs: 50 to 120 m - other wetlands: 30 m - all other except 	<ul style="list-style-type: none"> - wetlands PPS: 120 m - species at risk PPS + locations of endangered and threatened species: 100 m - locations of special concern species, 	<ul style="list-style-type: none"> - wetlands: 120 m - all other Environmental Policy Area: "abutting" lands, or "contiguous" Supportive Natural Systems and Natural Linkages, or lands "having a probable 	120 m (5.2.4, 9.3)

	Guelph City	London City	Caledon Town	East Gwillimbury Town
	Restoration Areas: 50 m (Table 6.1)	woodlands PPS, significant river, stream and ravine corridors, wildlife habitat, ANSIs, environmentally significant areas: 50 m - evaluated wetlands not PPS, non-significant woodlands, fish habitat: 30 m	functional relationship" (6.7)	
Buffer prescriptions	<ul style="list-style-type: none"> - determined by EIS - minimum setbacks regardless: <ul style="list-style-type: none"> - ≥ 30 m from wetlands PPS, cold/cool water fish habitat - ≥ 15 m from other wetlands, warm water fish habitat, streams - ≥ 10 m from woodlands dripline (Table 6.1) 	determined by EIS (not a setback but not necessarily a buffer as defined above) (15.3.6)		30 m from streams and 10 m from top of bank (5.1.15, 5.1.19)
Other impact mitigation (see Explanations)	<ul style="list-style-type: none"> - trail uses in wetlands, and in woodlands not cultural woodlands, further limited (6.1.5.3.3.5, 6.1.5.5.3.4, 	use site plan control, parkland dedication, etc. to maximize separation of development from NHS within lots (15.3.6.iii)	<ul style="list-style-type: none"> - ownership fragmentation discouraged in Environmental Policy Area (5.7.3.1.8) - on existing vacant lots 	

	Guelph City	London City	Caledon Town	East Gwillimbury Town
	<p>6.1.6.1.3.5)</p> <ul style="list-style-type: none"> - species-appropriate mitigation measures required (of both owner and City) at wildlife crossings (6.1.7.3) - encourage pollinator habitat protection (6.1.10.2.4) 		<p>partly within Environmental Policy Area, consider locating dwellings outside (5.7.3.3.6)</p>	
Zoning requirements				
NHS boundary refinements not requiring OPA	<ul style="list-style-type: none"> - "interpretations" through EIS - "minor refinements" consistent with text definition (6.1.4.4.4) - may be "refined and updated" through EIS (6.2.2.2) - Ecological Linkages: may be refined or added through subwatershed or site-specific study (6.1.5.8.3.11) - Restoration Areas: may be added in connection with new stormwater management facilities 	<p>"refinements" through Conservation Master Plans (15.3.8)</p>	<p>"minor refinements" through site-specific studies (5.7.3.1.4)</p>	<ul style="list-style-type: none"> - "minor refinements" or "adjustments" (4.1.3, 5.1.9) - more specific boundaries confirmed through EIS (5.1.8)

	Guelph City	London City	Caledon Town	East Gwillimbury Town
	(6.1.5.9.3.6)			
Relationship to water policies	<ul style="list-style-type: none"> - water bodies and some groundwater features included in NHS - EIS required to address NHS-water linkages (6.2.2.1) 	<ul style="list-style-type: none"> - some water bodies and some groundwater features included in NHS - water quantity and quality protection directly tied to NHS protection (15.4.10) 	<ul style="list-style-type: none"> - some groundwater features included in NHS - maintain/restore water quality entering wetland core areas, valley and stream corridors, core fishery resource areas (3.1.5.4.5, 3.1.5.10.4, 3.1.5.11.4) 	<ul style="list-style-type: none"> - water bodies included in NHS
Ecological restoration	<ul style="list-style-type: none"> - if NHS features/ functions reduced without authorization, not recognized as existing condition, and restoration required (6.1.4.2.3) - if wetland (except for other wetland where development permitted) impaired during development, mitigation/ remediation required (6.1.5.3.3.3, 6.1.6.1.3.3) - Vegetation Compensation Plan, 	<ul style="list-style-type: none"> - various policies encouraging stewardship (15.3.5), restoration (15.3.7, 15.4.6.iii) 	<ul style="list-style-type: none"> - if Environmental Policy Area damaged or destroyed, no change in designation, and replacement or rehabilitation required (5.7.3.1.6) - may require enhancement or restoration as condition of approval (3.1.4.13, 5.7.3.7.5) - various policies encouraging stewardship (3.1.4.15), reforestation (3.1.5.3.4), restoration 	<ul style="list-style-type: none"> - priority areas of Town for restoration and enhancement identified (5.4), including Big Woods Policy Areas which are not necessarily part of NHS (5.4.2.1, Schedule D) - no net loss of forest cover within Big Woods Policy Areas (5.4.2.2) - specific direction for restoration of primary and supporting environmental corridors (5.4.4.4-

	Guelph City	London City	Caledon Town	East Gwillimbury Town
	<p>Tree Preservation Plan required in cultural woodlands where development permitted (6.1.6.2.3.2, 6.1.6.2.3.7)</p> <ul style="list-style-type: none"> - various policies encouraging invasive species management (6.1.10.2.1), stewardship (6.1.10.2.3) - encourage plant rescue in advance of development (6.1.10.2.3.3) 		<p>(3.1.5.10.5, 3.1.5.11.5)</p> <ul style="list-style-type: none"> - specific management direction on restoration of woodlands (3.1.5.3.3) 	<p>5.4.4.9)</p> <ul style="list-style-type: none"> - policies encouraging stewardship (5.4.5.5)
Net ecological gain		<p>where infrastructure permitted, replace features on a one-for-one area basis, and in addition require compensatory mitigation, on- or off-site (15.3.3.iii)</p>	<p>in wetlands not wetland core areas and woodlands not PPS, one-for-one replacement or "net gain" additional consideration in approval of mineral aggregate operations, or failing that, compensatory mitigation off-site (5.11.2.2.6)</p>	
Ecological incentives	<p>to work with partners to "leverage funding to support land stewardship activities" (6.1.10.2.3.2)</p>	<p>may modify assessment, as well as facilitate use of provincial property tax incentive programs</p>		<p>to promote and encourage tax incentives for land stewardship (5.4.5.5)</p>

	Guelph City	London City	Caledon Town	East Gwillimbury Town
		(15.3.5.i)		

Table A4: Provincial Plans

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
<i>NHS basics</i>				
Plan	Central Pickering Development Plan, 2006	Greenbelt Plan, 2005 (Protected Countryside only; portions of Greenbelt subject to NE and ORM Plans not considered here)	Lake Simcoe Protection Plan, 2009	Oak Ridges Moraine Conservation Plan, 2002
Name of NHS (see Section 3.2)	Natural Heritage System	Natural Heritage System	no NHS specifically identified or designated, but see "What's Included", below; relies on ORM Plan and Greenbelt Plan NHSs; outside those, identifies Key Natural Heritage Features and Key Hydrologic Features	no NHS specifically designated; by implication, the NHS is Natural Core Area and Natural Linkage Area designations, and Key Natural Heritage Features (which occur in all designations)
How designated (see Explanations) <i>(References to base designations are within the context of the provincial plan only)</i>	overlay designation within Duffins Rouge Agricultural Preserve; primary designation in rest of plan area (Schedule 2)	base designation (Schedule 4)	no designations in Plan	Natural Core Area and Natural Linkage Area, base designations (Map); Key Natural Heritage Features (text description only)
Relationship to other plan designations (see Section 3.2)		Key Natural Heritage Features and Key Hydrologic Features (unmapped) are part of		

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
		NHS but also extend beyond it; beyond NHS, natural heritage features are identified on basis of and subject to PPS only		
NHS components (see Section 3.2)				
Species at risk habitat (see Explanations)	"all locations" of all species	<i>Following are Key Features within the NHS; Key Hydrologic Features are asterisked, as the plan is not clear whether they should be considered part of the NHS</i> PPS + significant habitat of special concern species identified by MNR	<i>Asterisked feature types constitute Key Natural Heritage Features; Key Hydrologic Features are double-asterisked, as the plan is not clear whether they should be considered part of the NHS</i>	<i>Following are Key Natural Heritage Features; Hydrologically Sensitive Features are also included and asterisked for information, but it appears the plan does not intend they should be considered as part of the NHS</i> PPS + significant portions of the habitat of "rare" species identified by MNR
Wetlands (see Explanations)	all (Schedule 3)	PPS + other evaluated wetlands	all*	PPS + other evaluated wetlands
Woodlands (see Explanations)	PPS, undefined	PPS, defined as identified through MNR criteria	PPS, defined as identified through MNR criteria*	as identified by MNR
Valleylands (see Explanations)	"all valley systems to stable top of bank"	PPS, defined as identified through MNR criteria	PPS, defined as identified through MNR criteria*	PPS, defined as identified by MNR
Wildlife habitat (see		PPS, defined as identified		PPS, defined as identified

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
Explanations)		through MNR criteria		by MNR
ANSIs (see Explanations)		all life science ANSIs		all life science ANSIs
Fish habitat (see Explanations)		PPS		PPS
Environmentally sensitive/ significant areas	all Environmentally Significant Areas, undefined		"natural areas abutting L. Simcoe"*	
Water bodies (other than wetlands)	all streams (Schedule 3)	- all streams including intermittent* - all lakes*	- all streams including intermittent** - L. Simcoe, by implication - all other lakes**	- all streams including intermittent* - kettle lakes*
Natural heritage-related groundwater features	- seepage areas - discharge areas	seepage areas and springs*		seepage areas and springs*
Hazardous lands				
Linkages	yes	by implication - portions of NHS not Key Features		by implication - portions of Natural Core Areas and Natural Linkage Areas not Key Features
Other features/ functions	Lake Iroquois shoreline (Schedule 3)	- sand barrens - savannahs - tallgrass prairies - alvars		- sand barrens - savannahs - tallgrass prairies

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
Adjacent lands/ buffers (see Explanations)	"buffer zones" - plan unclear whether setbacks or buffers	buffers	L. Simcoe buffer, by implication	buffers, by implication
NHS levels (see Explanations)				
Level 1 (most protective)	single-level system	Key Features and buffers (unmapped)	system not developed to extent levels identifiable	Key Features and buffers (unmapped)
Level 2		Portions of NHS not Key Features		Natural Core Areas not Key Features
Level 3				Natural Linkage Areas not Key Features
Development and uses permitted/restricted (see Section 3.2 and Explanations)				
Development not permitted in these NHS components/designations				
Uses specifically not permitted throughout NHS				
Uses specifically not permitted in these NHS components/designations		- Key Features: stormwater management ponds, except under restrictive conditions in major river valleys draining to L. Ontario (4.2.3.1)	woodlands, other than young plantation or early successional habitat: mineral aggregate operations (6.42)	Key Features, other than young plantation or early successional habitat: mineral aggregate operations (35.4)

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
		- woodlands, other than young plantation or early successional habitat: mineral aggregate operations (4.3.2.3)		
Development generally permitted in these NHS components/designations when no negative impacts demonstrated		Portions of NHS not Key Features (3.2.2, 3.2.4.1)		
Uses specifically permitted in these NHS components/designations	<ul style="list-style-type: none"> - base-designation NHS: <ul style="list-style-type: none"> - stormwater management facilities (4.1, policy 4) - "organic, public garden plots" (4.1, policies 4 & 10) - NHS Management Plan to be prepared for base-designation NHS to establish "long-term uses" (4.1, policy 2) - overlay-designation NHS: base-designation and Greenbelt Plan 	<ul style="list-style-type: none"> - NHS: <ul style="list-style-type: none"> - agriculture, agriculture-related, secondary agricultural uses (3.2.2.1) - Key Features and buffers: <ul style="list-style-type: none"> - mineral aggregate operations (3.2.4.1, 4.3.2.3) - recreational uses (3.2.4.1) - shoreline uses (3.2.4.1, 4.1.3) - expansion of existing agricultural 	<ul style="list-style-type: none"> - L. Simcoe and its buffer: <ul style="list-style-type: none"> - improvement of existing stormwater management facilities - low-intensity recreational uses (6.1) - structures only permitted if "no alternative" (6.4) - expansion of existing agricultural and residential structures (6.45) - Rest of NHS: 	<ul style="list-style-type: none"> - Key Features and buffers: low-intensity recreation (22.2) - Natural Core Areas: agriculture, home businesses and industries, bed and breakfasts, farm vacation homes, low-intensity recreation (11.3) - Natural Linkage Areas: Natural Core Areas uses, plus above-water table mineral aggregate operations (12.3, 35)

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
	policies apply (4.1, policy 5)	and residential structures (3.2.4.6, 4.5) - small-scale recreational structures (4.1.2.4) - shoreline structures (4.1.3.3)	preceding, plus mineral aggregate operations (6.23)	
Uses specifically permitted throughout NHS				expansion of existing structures (6.2), existing institutional uses (6.4)
Implementation policies				
Settlement areas (see Explanations)		- no NHS in settlement areas (3.2.2.5) - settlement areas subject to external connections policies promoting river valley and Lake Iroquois shoreline protection and enhancement (3.2.5) - no expansion into NHS (3.4.2, 3.4.4)	- no NHS in settlement areas - no adjacent lands or EIS requirement (6.32) - no L. Simcoe buffer, except where feasible (6.2, 6.32, 6.33) - no wildlife corridor demonstration requirement (6.5, 6.32) - no restoration direction as part of shoreline alteration (6.32)	- no connectivity maintenance requirement (19.3) - OP or ZB provisions based on appropriate study prevail over buffer requirements (21.3, 21.4) - no restrictions on lot creation, mineral aggregate operations (31.4)
Infrastructure	- base-designation NHS: specifically permitted, but must be "where no	- specifically permitted, but with environmental assessment process	- specifically permitted, but must be "no reasonable alternative"	- specifically permitted, but must be "no reasonable alternative"

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
	<p>reasonable alternative exists" (4.1, policy 4)</p> <ul style="list-style-type: none"> - overlay-designation NHS: base-designation and Greenbelt Plan policies apply (4.1, policy 5) - provides design considerations to minimize impacts (4.6, policy 9; additional for base-designation NHS in 4.1, policy 4) 	<p>complete and subject to meeting specific objectives (4.2.1.1)</p> <ul style="list-style-type: none"> - provides design considerations to minimize impacts on NHS (4.2.1.2, 4.2.1.3) 	(6.1, 6.23)	<p>(11.3, 12.3, 22.2)</p> <ul style="list-style-type: none"> - provides design considerations to minimize impacts on NHS (41)
Lot creation		<p>consents: lot additions not permitted if increase fragmentation of Key Features (4.6)</p>		<ul style="list-style-type: none"> - generally prohibited except in very restricted circumstances - any lot creation where Key Features exist subject to site plan agreement to ensure features protected (32)
EIS name		natural heritage evaluation + hydrologic evaluation	natural heritage evaluation	natural heritage evaluation
EIS specifications			yes (6.26)	yes (23)
When EIS required		all applications (3.2.4.5)	- all applications except uses permitted in 6.1 & 6.23 (6.3, 6.25)	

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
			- within 240 m of L. Simcoe, also required to demonstrate wildlife corridors will be maintained/enhanced (6.5)	
Adjacent land widths		120 m (3.2.4.5)	120 m (6.3, 6.25)	120 m
Buffer prescriptions		<ul style="list-style-type: none"> - "vegetation protection zone", determined by EIS - ≥ 30 m from wetlands, woodlands, fish habitat, water bodies, seepage areas and springs; agricultural structures may be exempted from vegetation requirement if setback used for agriculture (3.2.4.4, 3.2.4.7, 4.1.3.2) 	<ul style="list-style-type: none"> - "vegetation protection zone", determined by EIS - ≥ 100 m from L. Simcoe outside built-up areas, ≥ 30 m elsewhere (6.2, 6.24) 	<ul style="list-style-type: none"> - "vegetation protection zone", determined by EIS - ≥ 30 m from wetlands, woodlands, valleylands, fish habitat, sand barrens, savannahs, tallgrass prairies, water bodies, seepage areas and springs
Other impact mitigation (see Explanations)		<ul style="list-style-type: none"> - avoid removal of natural features not Key Features - disturbed area $\leq 25\%$ of site, impervious area $\leq 10\%$ (major recreation, mineral aggregate operations) 	<ul style="list-style-type: none"> - in Lake Simcoe buffer, use pervious materials and designs where feasible (6.4) - shoreline alteration restricted in purpose and design (6.7, 6.9) 	<ul style="list-style-type: none"> - maintain/enhance connectivity between Key Features (20, 35.1) - mineral aggregate operations in Natural Linkage Areas subject to locational

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
		<p>excepted; golf courses, disturbed area $\leq 40\%$; aggregates, disturbed area determined by MNR) (3.2.2.3, 4.3.2.4)</p> <ul style="list-style-type: none"> - natural vegetation area $\geq 30\%$ of site (mineral aggregate operations excepted, subject to 4.3.2.6) - maintain/enhance connectivity between Key Features ≤ 240 m apart - lot coverage $\leq 25\%$ (3.2.2.4) 		<p>restrictions to ensure connectivity maintained (35.3)</p>
OP requirements				
Zoning requirements				
NHS boundary refinements not requiring provincial plan amendment	"minor adjustments", through neighbourhood plans part of Pickering OP (5.4)	"may be refined, with greater precision", through OP conformity (3.2.2.6)		Natural Core Area and Natural Linkage Area boundaries "may be further defined . . . with greater precision" through OP conformity (10.2)
Relationship to water policies	water bodies and some groundwater features	- water bodies and some groundwater features	- water bodies and some groundwater features	

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
	included in NHS	may be considered included in NHS - NHS and undesignated Water Resource System together make up Natural System, supporting each other and requiring comprehensive, integrated planning (3.2.1)	may be considered included in NHS	
Ecological restoration	<ul style="list-style-type: none"> - base-designation NHS: NHS Management Plan to establish "maintenance requirements and responsibilities " (4.1, policy 2) - overlay-designation NHS: encourage agricultural uses/practices that promote linkages and restoration (4.1, policy 6) 	<ul style="list-style-type: none"> - vegetation enhancement plan required for major recreational uses (4.1.2.2) - specific management direction on restoration as part of recreational use development (4.1.2), shoreline development (4.1.3), mineral aggregates development (4.3.2.3) - mineral aggregate operations subject to rehabilitation requirements over and above <i>Aggregate Resources Act</i> (4.3.2.4, 4.3.2.5, 	<ul style="list-style-type: none"> - various policies encouraging stewardship (6.15, 8.5-8.9), restoration (6.47), monitoring (6.50, 8.12), invasive species management (7.1-7.10) - specific management direction on restoration as part of shoreline alteration (6.9, 6.11) - specific management direction on restoration as part of mineral aggregates development (6.43, 6.44) 	<ul style="list-style-type: none"> - specific management direction on restoration as part of mineral aggregates development - mineral aggregate operations subject to rehabilitation requirements over and above <i>Aggregate Resources Act</i>

	Central Pickering	Greenbelt	Lake Simcoe	Oak Ridges Moraine
		4.3.2.6)		
Net ecological gain	neighbourhood plans part of Pickering OP to include "performance measures" for "environmental net gain" (5.1, policy 6)	mineral aggregate rehabilitation to, where possible, improve Key Features "to promote a net gain of ecological health" (4.3.2.5)	mineral aggregate operation to, where possible, improve Key Features and buffers "to promote a net gain of ecological health" (6.43)	rehabilitation by replacement of natural vegetation of equal or greater value additional consideration in approval of mineral aggregate operations in Key Features (35)
Ecological incentives	base-designation NHS: NHS Management Plan to establish "programs and associated financial implications " (4.1, policy 2)			

Table A5: Innovative Policies in Australia

	NSW BioBanking	Queensland Offsets	Victoria Vegetation
Policy document reviewed	<p>New South Wales Department of Environment and Climate Change, <i>BioBanking: Biodiversity Banking and Offsets Scheme: Scheme Overview</i>, November 2007</p> <p><i>This is a policy applicable to planning applications/approvals</i></p>	<p>Queensland Environmental Protection Agency, <i>Queensland Government Environmental Offsets Policy</i>, June 2008</p> <p><i>This is a policy applicable to the development of offsets policies for specific issues, and to planning applications/approvals; does not apply to approvals entirely within local jurisdiction</i></p>	<p>Victoria Department of Natural Resources and Environment, <i>Victoria's Native Vegetation Management: A Framework for Action</i>, [2002]</p> <p><i>This is a policy applicable to planning applications/approvals</i></p>
Policy purpose	<ul style="list-style-type: none"> - "biobanking" provides a new and preferred scheme for "biodiversity offsets" - offsets permitted, in conjunction with avoidance of "red flag" (most critical) areas (subject to permitted variations); must "improve or maintain" net impacts - offsets can include habitat improvement, or species habitat or population increase - allowing offset exchange intended to provide more optimal outcomes (e.g., offsets for a number of developments can be combined in more suitable locations) 	<ul style="list-style-type: none"> - clearly defines "environmental offsets": to address residual impacts after mitigation, that cannot be "avoided or minimized", and may be on or off site - policies for some specific issues already in place (e.g., koala habitat), more to be developed as required - provides 7 policy principles for use of offsets - cannot be used to allow development where otherwise not permitted - must achieve "equivalent or better" outcome 	<ul style="list-style-type: none"> - State methodology determines what constitutes vegetation "net gain" - where "conservation significance" very high, no clearing "unless exceptional circumstances apply"; if high or medium, clearing "generally not permitted" - offsets can only be considered to address residual impacts after mitigation - clearing only permitted where applications demonstrate net gain from offsets
How it works	<ul style="list-style-type: none"> - credit types: 	<ul style="list-style-type: none"> - gains from offset must be to 	<ul style="list-style-type: none"> - area (ha) x relative quality

	NSW BioBanking	Queensland Offsets	Victoria Vegetation
	<ul style="list-style-type: none"> - ecosystem credits - offset must be in same vegetation community, or another, similarly threatened community in the same "formation" (appears to be equivalent to Ontario ELC community series) - species credits - offset must be to same threatened species - limited to biodiversity values specified in statute - State methodology determines how many credits must be purchased to meet "improve or maintain" test; summarized in biobanking statement submitted in support of development application; credit purchase requirement incorporated in planning approval - biobanking statement exempts applicants from EIS-equivalent assessments otherwise required 	<ul style="list-style-type: none"> same or similar feature type as losses from impact - minimize time lag between impact and offset - offset types: <ul style="list-style-type: none"> - direct (e.g., habitat enhancement) - generally preferred - indirect (e.g., research) - may be appropriate in some situations - specific issue offsets policies should include methodology to determine type and extent of offsets required - offsets agreement required as part of planning approval - land-based offsets must be secured on title - offsets should only be used as conditions of approval where subject to existing specific issue offsets policy - "advance offsets" may be created, to provide more optimal outcomes (e.g., offsets for a number of developments can be combined in more suitable locations) - applicants may also provide voluntary offsets, not conditions of approval, to show 	<ul style="list-style-type: none"> score, where benchmark is 1.0 for a mature, undisturbed, connected stand of the same type = "habitat hectares" - the higher the conservation significance of the vegetation lost, the offset must: <ul style="list-style-type: none"> - involve more habitat hectares relative to those of the loss - be of a more similar vegetation/habitat type - rely more on improvement of existing vegetation and less on revegetation - where large old trees exist, rely more on protecting them and less on planting new trees - be closer to the loss in both space and time - gains must be realized within 10 yr - offsets stipulated in management agreement or planning approval

	NSW BioBanking	Queensland Offsets	Victoria Vegetation
		environmental responsibility	
Economic aspects	<ul style="list-style-type: none"> - scheme creates market in biodiversity credits, managed by State - vendors are landowners who commit to protecting and enhancing biodiversity values and wish to obtain income from conservation management - purchasers are: <ul style="list-style-type: none"> - developers who need offsets to meet "improve or maintain" test - anyone else wishing to advance biodiversity conservation - biobanking agreement, registered on title, specifies and prices required management actions; agreement assessed in accordance with State methodology; appropriate type and amount of biodiversity credits issued - floor price for credits established to ensure management costs covered - income from sale of credits deposited to biobanking trust fund, which disburses management payments to landowner 	<p>among options for implementing offsets:</p> <ul style="list-style-type: none"> - buy "offset credits" from landowners holding advance offsets - contribute to "offsets fund" which will then secure and undertake the offset 	<ul style="list-style-type: none"> - trials under way for competitive auction scheme for vegetation management - landowners bid to manage their vegetation, those bids offering best value for money receive periodic payments for 3 yr - brokerage scheme to be developed to facilitate matching of losses with offsite gains

	NSW BioBanking	Queensland Offsets	Victoria Vegetation
Implementation authority	<ul style="list-style-type: none"> - <i>Threatened Species Conservation Act 1995</i>, part 7A (Biodiversity Banking), and provisions of <i>Environmental Planning and Assessment Act 1979</i> - Threatened Species Conservation (Biodiversity Banking) Regulation 2008 - BioBanking Assessment Methodology (published under authority of the preceding with status roughly equivalent to Provincial Policy Statement) 	<ul style="list-style-type: none"> - Provisions of <i>Sustainable Planning Act 2009</i> and <i>Environmental Protection Act 1994</i> - Queensland Government Environmental Offsets Policy, 2008 	<ul style="list-style-type: none"> - Victoria Planning Provisions (published under authority of <i>Planning and Environment Act 1987</i> with status roughly equivalent to Provincial Policy Statement) - Victoria's Native Vegetation Management: A Framework for Action, 2002 (incorporated into all municipal plans by authority of the Victoria Planning Provisions)
Methodology details	<p>The State methodology, which is critical to determining whether development and compensating actions net out as meeting the "improve and maintain" test, is provided as above, and briefly summarized in New South Wales Department of Environment, Climate Change and Water, <i>The Science Behind BioBanking</i>, August 2009. Although the test does not require more than "maintain", it appears the effect of the methodology is that more than one-for-one replacement is required to meet the test.</p>	<p>See specific issue offset policies for vegetation management, marine fish habitat, koala habitat.</p>	<p>The scientific basis of the State methodology is described in more detail in D. Parkes et al, "Assessing the Quality of Native Vegetation: The 'Habitat Hectares' Approach", <i>Ecological Management and Restoration</i>, 2003.</p>